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THE MAGAZINE OF GAS DISTRIBUTION

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SEPTEMBER 1961

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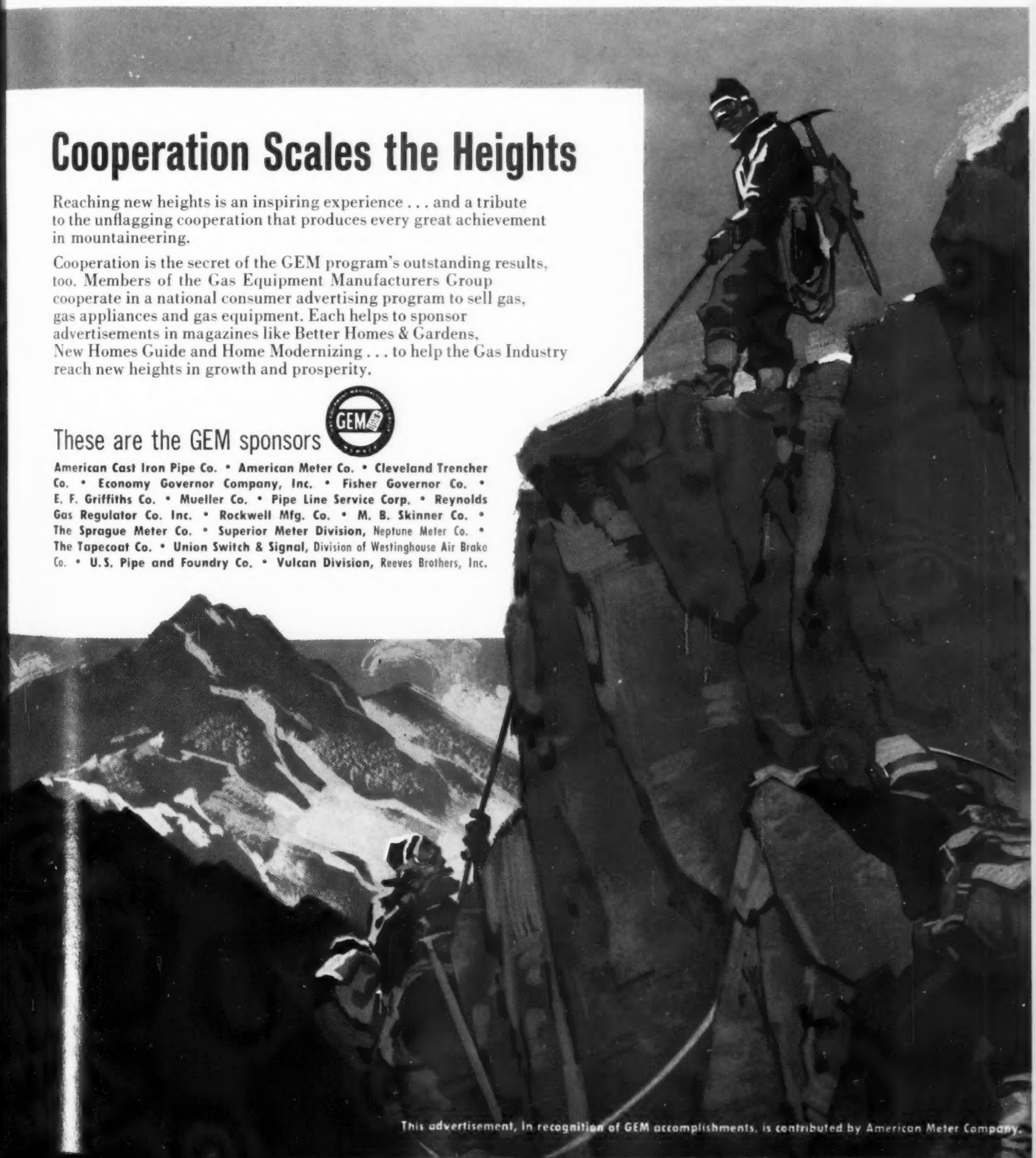

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**Maximum engine horsepower at standard conditions.*

INTERNATIONAL HARVESTER

Editor's Notebook

Dear Reader:

How much natural gas will be needed in future years? Will there be ample reserves to meet what seems to be a never-ending increase in demand?

Considerable furor has been created in recent weeks over the industry's gas reserves vs. customer demand. Industry spokesmen are quick to point out that annual additions to the gas reserve have been equal to—or greater than—annual consumption.

However good this may sound as a public relations approach, it is unrealistic. Especially when no reliable figures are available . . . nor have studies been made . . . on future supplies and requirements. No one really knows how much gas will be found in the future. We can only guess-timate. **And we need better guess-timates.**

Energy is the foundation of our industrial society. Natural gas now supplies nearly 30 percent of the total annual energy used in the U. S. What role natural gas will play in the future depends on its ability to supply its share—or more—of the ever-increasing need for energy.

In a step forward, and to its credit, the A.G.A. has established a "gas requirements and supply committee" to study, analyze, and report on the industry's position in these controversial areas. A permanent committee, it will function similarly to the A.G.A.'s committee on gas reserves . . . and work closely with that group. Heading the newly organized committee is Larry Shomaker, senior vice president of Northern Natural Gas dustry marketing and long range plannin Company, a 30-year veteran in gas industry marketing and long range planning.

Work of the new committee will be in two directions. One segment will study availability—and probable costs—of new gas supplies. Its efforts will be to determine **probable** gas reserves in various gas producing areas. (The present reserves committee reports on **proven** reserves.) Studies will be based on the present 10 districts established by the reserves committee.

The other segment will study probable future gas requirements . . . using 10 regions in the U. S. to simplify collection and reporting of information.

Predictions of future requirements are easier to come by than future supplies. The cold hard facts are that price will probably be the most important consideration in determining future supplies. Unless rewards are sufficient for extensive exploration for new gas reserves, there will be little if any incentive to find them.

— The Editor

American Gas Journal®

THE MAGAZINE OF GAS DISTRIBUTION

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Barber-Greene Model 774 Wheel Ditcher—with its many new, exclusive advantages—digs accurately to grade as it sets production records on new superhighway drainage ditch. Write for new bulletin.

Why this rugged Barber-Greene digs up to 25% more trench per day

These exclusive Barber-Greene advantages enable the Model 774 Wheel Ditcher to produce up to 25% more ditch per day than any machine of its size:

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- **New Digging Wheel Drive** through telescoping drive shaft, floating differential and split No. 1 shaft cuts maintenance and wear on drive unit . . . assures balanced torque and constant contact on both sides of the digging wheel.
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M C F

NEWS HILITES OF THE INDUSTRY

"Declining U. S. natural gas reserves" declared in FPC opinion. Canadian gas will be served to prospective gas consumers in the Massena-Ogdensburg area of St. Lawrence county in New York State under terms of an FPC authorization granting St. Lawrence Gas Company, Inc., the right to import 3.7-billion cu ft of gas annually. Simultaneously, the FPC denied a competing application by New York State Natural Gas Corporation to sell gas to Niagara Mohawk Power Corporation, which also sought to serve the area. The FPC said the NYSNG-Niagara Mohawk plan was not economically feasible, would have a higher investment per customer, and that the firms' market estimates "were not as well supported" as those of St. Lawrence. Gas supply for St. Lawrence Gas will come from the Trans-Canada Pipeline and is protected until June 30, 1980, by a Canadian National Energy Board license. The project, noted the FPC, will use extensive Canadian reserves with resultant savings in declining U. S. gas reserves, a factor that "weighs heavily" in favor of St. Lawrence, a subsidiary of The Consumers' Gas Company of Toronto. Commissioner Howard Morgan prepared the opinion.

Visitors to the "Century 21" Exposition in Seattle in 1962 will get a look into the future at the gas industry exhibit, one of the largest at the 1962 World's Fair show. A $350,000 structure planned by the gas industry will feature past, present, and future uses of gas. Equipment and appliances in the research stages will be shown. President of the Century 21 Gas Exhibit, Inc., is William P. Woods, also president of Washington Natural Gas Company, Seattle.

"Greater Goals For Gas" is the theme selected for the A.G.A. annual convention, slated for Dallas on October 1-4. Research, salesmanship, physical fitness, and television head the list of vital messages from more than two-score speakers, headed by master of ceremonies Chet Stackpole. A "Big Round-Up" luncheon on Wednesday, October 4, will climax the meeting.

Factory shipments of gas appliances — especially built-in gas ranges and gas central heating boilers — indicate the industry is moving ahead and expects accelerated sales activity in the last half of '61 and throughout 1962, reports GAMA. Record highs for built-in range shipments are seen for 1961, totaling some 378,000 units, and a prediction of 451,000 units in 1962. Gas-fired boilers are expected to total 148,700 this year, and 166,200 in 1962. Automatic storage gas water heaters will total 2,900,400 this year and may reach as high as 3,091,800 next year.

New approach for the 8th Biennial Industrial Gas School sponsored by A.G.A. will find the school's students spending three days visiting plants of five manufacturers of industrial gas equipment. The school is scheduled for September 18-22 at the Marriott Motor Hotel in Philadelphia. Students will study fundamentals, specific applications, and background for their three-day visitation on Monday, and follow the plant tour on Friday with an all-day session devoted to creative selling techniques.

FPC has denied intervention in the "Rock Springs" case by two Tennessee Gas subsidiaries — Tennessee California Gas Transmission Company and California Gas Transmission Company. The "Rock Springs" project, being reheard by the commission on minor changes in design, would be built by El Paso Natural Gas and Colorado Interstate Gas to supply additional gas to Southern California markets. It was conditionally authorized in December 1960 by the FPC. In denying the petition to intervene, FPC said no showing was made in the petition that authorization of the Rock Springs project would preclude granting of the Tennessee Gas-Southern California Edison proposal. TGT and Edison, along with Petroleos Mexicanos, propose to transport gas from Texas to Los Angeles via northern Mexico.

Arkansas Louisiana Gas Company will acquire all properties and assets of Southwest Natural Gas Company of Shreveport in an exchange of stock, subject to approval by Southwest stockholders. The exchange would be at a rate of one share of Arkansas Louisiana Gas stock for five shares of Southwest. A tentative closing deadline of December 31 has been set, subject to approval by regulatory agencies having jurisdiction.

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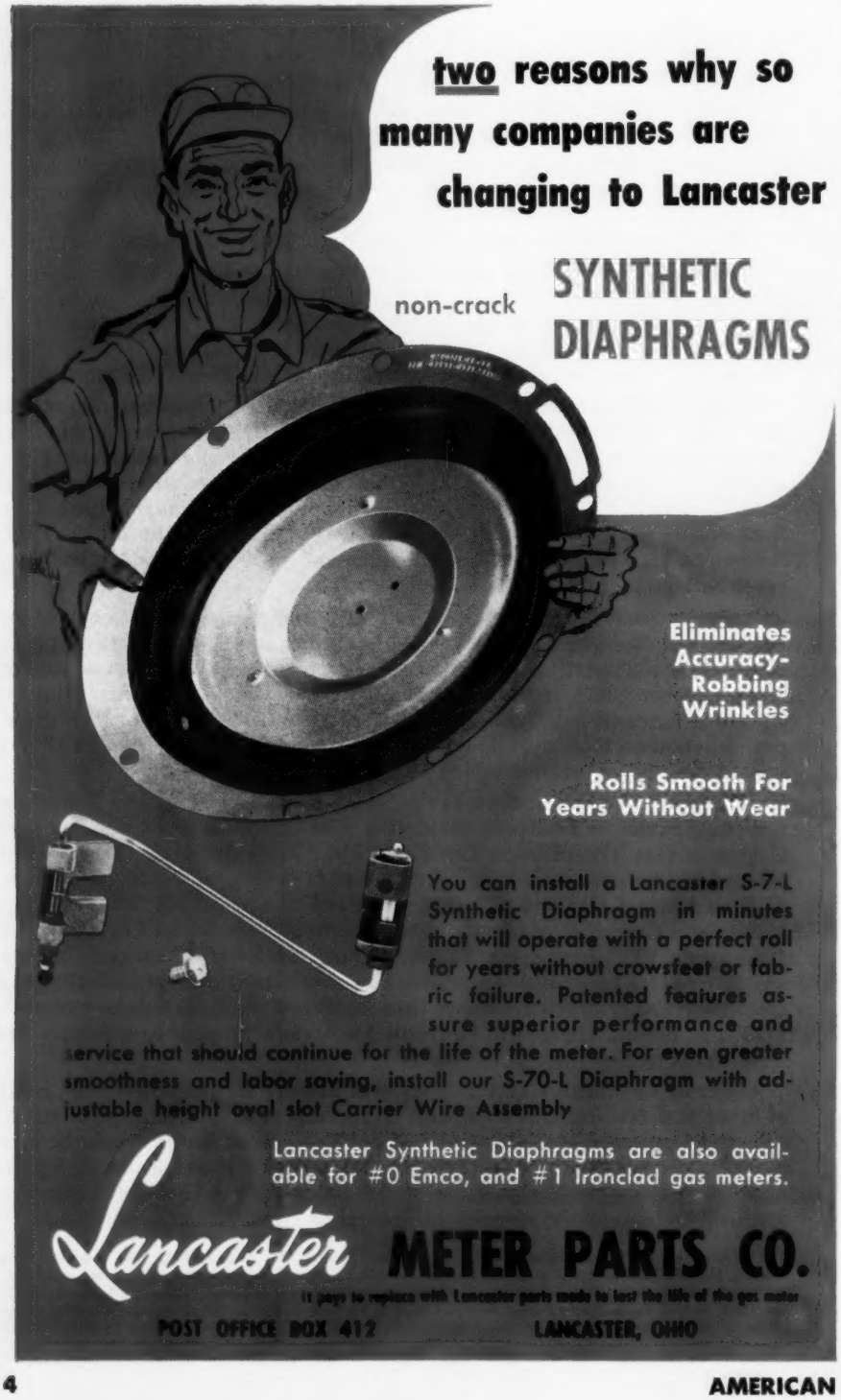
Men At Work

R. Graham Mattocks has been appointed superintendent in the gas construction department of the Baltimore Gas and Electric Company replacing Robert Z. Gartrell, deceased. He was formerly assistant superintendent.

Vian B. Silliman, who has been staff engineer for Philadelphia division of United Gas Improvement Gas Works has been named engineer of U.G.I.'s Reading gas division. **Irving P. Cook,** distribution superintendent in U.G.I.'s Harrisburg Gas Division, will succeed Silliman. Succeeding Cook will be **John S. Beard,** presently superintendent of gas supply and services in the Harrisburg division. He will be replaced by E. Bryce Wolford, who has been staff engineer with the Lehigh Valley Gas Division.

C. R. (Dick) Deringer of Ada, Ohio, appliance serviceman for the Ohio Fuel Gas Company, has been named an instructor at the Columbia Gas System Service Training School in Washington, Pennsylvania, training center for servicemen from Columbia Gas System subsidiaries. **H. C. Heflinger,** former Fremont district manager for Ohio Fuel Gas and for the last two and half years, associate district manager of the Lake Erie district, has retired.

Don E. Woodward of Albuquerque, New Mexico, has been named a director of Southern Union Gas Company.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You can install a Lancaster S-7-L Synthetic Diaphragm in minutes that will operate with a perfect roll for years without crowsfeet or fabric failure. Patented features assure superior performance and service that should continue for the life of the meter. For even greater smoothness and labor saving, install our S-70-L Diaphragm with adjustable height oval slot Carrier Wire Assembly
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Lloyd A. White has been assigned to the operations department of The Peoples Natural Gas Company as commercial service representative. He has been commercial sales manager.

Joe T. LaBoon has been named manager of the Rome division of Atlanta Gas Light Company. He succeeds Ben L. Maulsby, who died July 20. LaBoon was previously division engineer.

R. A. Metzke, manager of United Gas Corporation's Southwest Texas distribution division has been promoted to operating manager of the Texas distribution division in Houston.

The Saskatchewan Power Corporation's new public relations superintendent is **D. J. (Dave) Anderson,** formerly assistant to the corporation's sales manager.

William J. Harvey, Public Service Electric and Gas Company vice president in charge of gas operation, will retire October 1, after 45 years' service. His successor is **Jack V. Richards,** presently general manager of the gas department. Other changes include promotion of **Charles R. Dewhurst** to general manager and **Jean H. Miller** to general superintendent of distribution. **John Selbach,** district superintendent in the Passaic District gas distribution department, who has retired after 40 years' service with the company. His successor is **Arthur Barrowclough,** superintendent of the Ridgewood district. Barrowclough will be replaced by **William Harkness,** district engineer, **Walter H. Werder** has been named division service engineer, Hudson division. **Walter H. Browning** has been promoted to division service engineer in the southern division. **Norman C. Small,** division superintendent, Southern division, has retired after 41 years' service. His successor is **James C. Costello,** formerly division staff engineer.

A. B. McCurdy of Lone Star Gas Company's Dallas Division of Distribution has been named chief engineer. **John M. Commings** succeeds McCurdy as division industrial engineer.

Albert B. Cook has been appointed commercial manager for the Pacific Gas and Electric Company, replacing **R. W. Joyce** who becomes vice president in charge of commercial sales. He succeeds **Stanley O. Blois,** named Colgate division commercial manager in Marysville.

Willard G. Wiegel has been named vice president and director of Gas Industry Exhibitors, Incorporated, which manages the Gas Appliance Center in Dallas. Wiegel retired recently as treasurer and vice president in charge of personnel for Lone Star Gas.

Leo C. Mueller, Jr., has been named vice president in charge of sales for Steele & Associates, Inc., consulting corrosion engineering firm, Atlanta, Georgia.

Donald R. Westbo has been appointed factory sales engineer in the Gulf Coast area for T. D. Williamson, Inc. Previously, he was a sales engineer for Holcomb Co., Inc. of Shreveport, La.

Richard D. Wilhite, vice president of Orange and Rockland Utilities, Inc. has been elected to the board of directors of the company. He succeeds **Vernon M. F. Tallman,** who is retiring as a director. Wilhite became a vice president of the utility in 1960 and has been associated with the company since 1929.

Repeat purchases —the best endorsement for Polyken

1956 INSTALLATION, Chester to Bellwood, Va., 4.5 miles of 6" pipe

1960 INSTALLATION, Boswell's Tavern to Gum Spring, Va., 26.7 miles of 18" pipe

Commonwealth Natural Gas makes repeated use of Polyken® tape on strength of past performance

Officials of Commonwealth Natural Gas Corporation of Richmond, Va., were impressed in 1956 with the many advantages of Polyken protection. With confidence based on the cathodic protection needs of their Polyken tape-coated 1956 Bellwood line (*inset photo*), they put this coating to work two years later on their Chester to Petersburg, Va., line (12 miles of 18" pipe). In 1959, *more* Polyken coating . . . Waverly to Ivor, Va., (15.8 miles of 12" pipe). And most recently, the line from Boswell's Tavern to Gum Spring (*main illus.*).

It stands to reason that repeated use is founded on first-hand satisfaction and trust. Many discriminating companies make Polyken protection their standard specification because of its dependable performance. Get full details on Polyken performance and economy from your representative, or write Polyken Sales Division, 309 West Jackson Boulevard, Chicago 6, Illinois.

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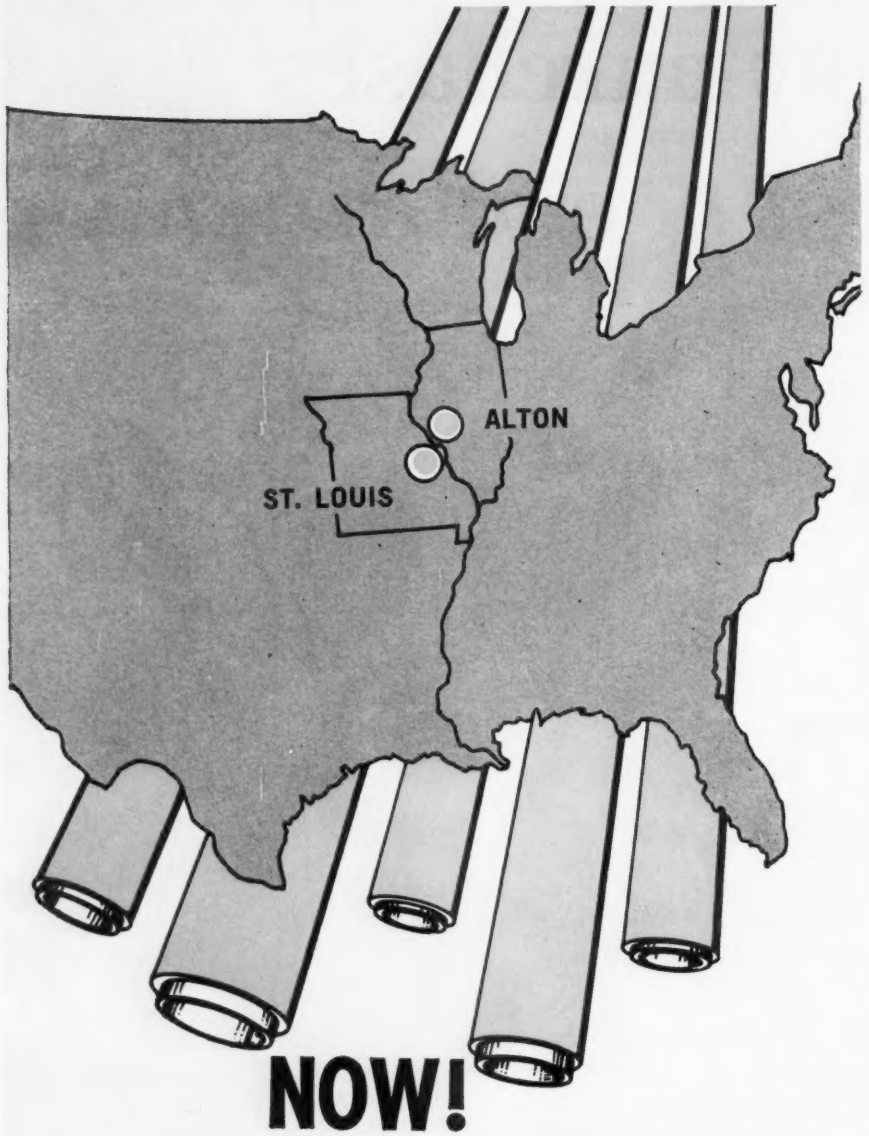

NOW!

from SPI's new Alton, Illinois Plant comes STANDARD X-TRU-COAT

Standard Pipeprotection's new plant at Alton, Illinois has been shipping Standard X-Tru-Coat pipe to the Southwest and West since early July. Sizes available include ¾" Nom. through 4½" O.D.

X-Tru-Coat high density polyethylene plastic coating for pipe is produced under the DeKoron process — Pat. Nos. 2,447,420 and 2,467,642 — and is extruded on pipe over a pressure sensitive adhesive.

Standard Procedures assuring top quality prevail at the Alton, Illinois plant, as they have for many years at SPI's coating and wrapping plant in St. Louis. In-Transit privileges are available at both plants from any pipe mill.

Standard Pipeprotection, with the introduction of X-Tru-Coat, has continued to contribute to the progress of the oil and gas industry.

Write for complete information and for Price List Number X-1.

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Calendar

OF COMING EVENTS

September

7 Rocky Mountain Gas Association, annual banquet, Denver Hilton, Denver, Colorado.

11-13 A.G.A. annual accident prevention conference, Statler Hilton Hotel, Dallas, Texas.

11-15 ISA fall instrument-automation conference and exhibit, Biltmore Hotel, Los Angeles, California.

12-14 Mid-West Gas Association school and conference, Ames, Iowa.

13-15 PCGA annual convention, Coronado Hotel, Coronado, California.

14 Mid-West A.G.A. Public Relations Workshop, The Town House, Omaha, Nebraska.

15-16 Maryland-District of Columbia Utilities Association, fall conference, Cavalier Hotel, Virginia Beach, Virginia.

18-19 NEGA gas utility managers conference, Bald Peak Colony Club, Melvin Village, New Hampshire.

18-19 Independent Natural Gas Association of America, annual membership meeting, Shamrock-Hilton Hotel, Houston, Texas.

18-22 A.G.A. industrial gas school, Marriott Motor Hotel, Philadelphia, Pennsylvania.

20-22 Southeastern Gas Association, annual meeting, Roanoke, Virginia.

21 NEGA safety conference, Statler Hilton, Boston, Massachusetts.

24-27 ASME Petroleum Mechanical Engineering Conference, Hotel Muehlebach, Kansas City, Missouri.

25-28 American Welding Society fall meeting, Adolphus Hotel, Dallas, Texas.

27-29 Oklahoma Corrosion Course, sponsored by NACE and U. of Oklahoma, Norman, Oklahoma.

28 NEGA Safety Conference, Statler Hilton, Boston, Massachusetts.

October

1- 4 A.G.A. annual convention, Dallas, Texas.

3-4 Ninth Annual Gas Measurement Institute, Southwest Kansas Center, National Guard Armory, Liberal, Kansas.

4- 6 NACE western regional conference, Benson Hotel, Portland, Oregon.

5- 6 Gas Compressor Engines Short Course, University of Oklahoma, Memorial Union Building, Norman, Oklahoma.

9-11 NACE north central regional conference, Chase Park Plaza Hotel, St. Louis, Missouri.

10-12 ASA 12th National Conference on Standards, Rice Hotel, Houston, Texas.

12-13 Florida Natural Gas Association, Distribution Conference, Palm Beach, Florida.

16-20 National Safety Council, annual meeting, Chicago, Illinois.

18-19 Wisconsin Utilities Association, gas and electric sales and operating convention, Schroeder Hotel, Milwaukee, Wisconsin.

19-20 A.G.A. Marketing Research Seminar, Essex Inn, Chicago, Illinois.

24-25 AGA-NEGA safety course, Parker House, Boston, Massachusetts.

25-26 A.G.A. Great Lakes Public Relations Workshop, Milwaukee Inn, Milwaukee, Wisconsin.

24-27 NACE south central regional conference and exhibit, Shamrock Hotel, Houston, Texas.

It is only natural for your customers to take gas metering accuracy for granted. **But you do not — and neither does Reeves Vulcan.** Our quality control specialists test our diaphragm fourteen (14) separate ways. Only those diaphragms that come through with a straight A average are passed. This is the only sure way to protect your high standards and assure you of the best possible diaphragms for your meters.

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Impromptu "chalk talk" finds Brooklyn Union's John McShane explaining the storage of customer records on magnetic tape to (left to right) John Nocero, Jim Barrell, Bob Prunty and Tom Chandler. A single reel of tape can contain up to 40,000 complete customer account records.

Planned Two-Year Program Provides Smooth Transition to Computer and EDP

Edwin J. Vetog, Manager, Data Processing Department, The Brooklyn Union Gas Company, Brooklyn, New York

A carefully planned two-year program to smooth the changeover from punch card machine accounting to electronic data processing will enable the Brooklyn Union Gas Company to reap the benefits of present and future advances in computer technology.

At the end of the two-year period, late in 1961, Brooklyn Union will become the first utility in the United States to install the new IBM 7074 data processing system.

By that time — because of the transition program — we will be ready to put the new computer to work immediately, handling our entire payroll operation and a good portion of our customer accounting and billing. In the engineering area, the 7074 will correlate sendout-temperature data and solve design problems relative to the gas distribution network.

A key element in Brooklyn Union's rapid conversion to computer techniques has been a new customer billing program designed especially for utilities and provided by IBM. Called SURE, for Symbolic Utilities Revenue Environment, it has enabled us to cut our programming time substantially in the customer accounting area.

Within a short time after delivery of our computer, we will be ready to use it for appliance receivables billing, materials and supplies inventory, and general ledger accounting. In the future it will be used by engineers to forecast natural gas requirements, by our customer service department to speed its fulfillment of meter orders and by our economic research department for its cost-of-service studies.

The decision to convert data processing operations from punched card equipment to computers was made in late 1959 after an exhaustive feasibility study by a committee headed by general auditor Reinhold H. Johnson. It reflects Brooklyn Union management's awareness that data processing methods must be modernized to keep pace with company and industry growth. The company, which distributes natural gas throughout the boroughs of Brooklyn and Staten Island and part of Queens, serves approximately 1,200,000 meters.

The feasibility study, based on the company's current and future data processing requirements, showed that the replacement of punch card equipment with powerful electronic computers would result in long-term financial savings and greater flexibility in data handling.

After deciding to convert to electronic equipment, the feasibility committee had to answer these questions:

- Which particular electronic data processing system is best suited to our needs?
- How will we recruit and train the personnel required to staff a data processing department?

Because computers could be used to good advantage in almost every area of the company, it was apparent that a powerful system, flexible enough to handle both commercial (payroll and billing) and scientific (distribution design and gas requirements forecasting) applications, would be needed.

On the committee's recommendation, an IBM 7070 system was ordered. When the new 7074 was introduced, it was decided to order this system instead and Brooklyn Union was the first utility in the country to do so. The 7074, plus four previously-ordered IBM 1401 systems, which will print documents at high speed from magnetic tapes prepared by 7074, is to be delivered at the end of this year to co-

Analyzing a test run, Edwin J. Vetog (left foreground), Brooklyn Union data processing manager, discusses a report printed out by the 7070 with Edward A. Cotty, general supervisor of Brooklyn Union's data processing department. In the background, Brooklyn Union programmers huddle around the 7070 console at IBM's Datacenter. Brooklyn Union will continue to test its programs on the 7070 until it receives delivery of a 7074 later this year.

IBM 1401 data processing system shown here at the Datacenter is used for high-speed input and output to and from the 7070. Joseph Pinnola (left) checks information being printed at the rate of 600 lines a minute while Joseph O'Keefe records data displayed on the 1401 console. Brooklyn Union will use four 1401's with its 7074.

incide with the completion of a new general office building in downtown Brooklyn.

Until the machines are installed, we are using the facilities of the manufacturer's Financial Datacenter in lower Manhattan to prepare and test the procedures our computers will use to handle our data processing.

For testing purposes, we are using a transistorized 7070 data processing system, fully compatible with the 7074. The 7074, also transistorized, is twice as fast as the 7070 in processing business data, and up to twenty times as fast in scientific computation. The 7074 can, for example, add or subtract 100,000 six-digit numbers per second.

In addition to providing machine time for testing, the manufacturer also provides, at no cost, a staff of its data processing experts to help the utility's personnel prepare and test programs at the Datacenter.

As previously indicated, the SURE program has already saved us a substantial number of man-hours of programming time. (A *program* in this context is basically a series of instructions written in a language the computer can comprehend. These instructions tell the machine how to handle the data it is provided, and how to produce correct and meaningful answers.)

Use of the SURE program has enabled us to step up our programming schedule so that we now expect to have the 7074 handle our entire customer billing operation by mid-1962.

The SURE program was developed after a two-and-a-half year study of the customer billing procedures of six of the nation's major utility companies. Because basic billing practices are much the same for all utilities, it has been a relatively simple matter for our personnel to modify the program to fit it exactly to our needs.

SURE was written for the IBM 7070. Thus it can be used unchanged — and at higher speed — on the 7074. In addition to accelerating the programming schedule, SURE gave the then-fledgling data processing staff a highly professional model program from which it already has drawn many sophisticated programming ideas.

Brooklyn Union's new data processing department was established in January, 1960, with a nucleus of three people who had broad experience in our punch card operation. It was decided that, instead of going outside the company to recruit programmers who were unfamiliar with our operation, we would draw from qualified people within the company, regardless of their positions, who thought they might be interested in careers in programming.

The result was gratifying. One hundred ninety-eight employees, representing all but four departments of the company, responded. Each applicant was given an aptitude test obtained from IBM that was specifically designed by the Psychological Corporation for the selection of programmers.

On the basis of test scores and personal interviews dealing with background, education and interests, 20 employees were finally selected, representing nine different departments of the company.

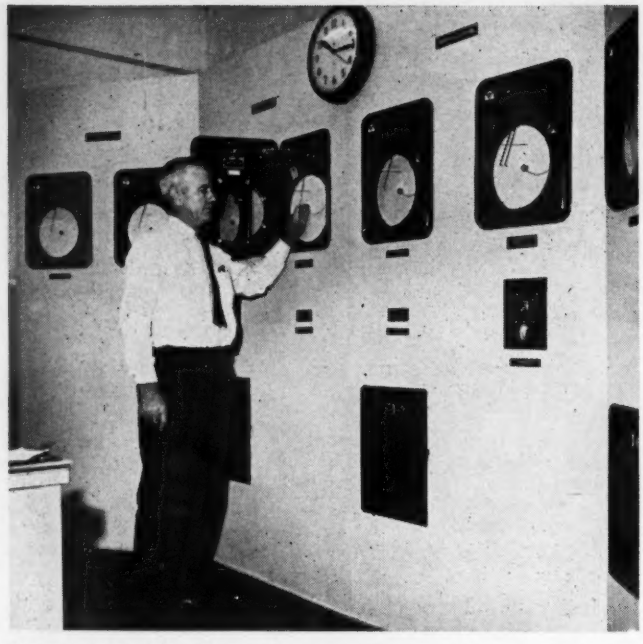
Members of this staff with no punch card experience received a week-long introduction to data processing fundamentals. The entire group then attended a five-week full-time school for instruction in programming the 7074. This group was reduced to 15 upon completion of formal schooling.

The decision to use untried personnel as programmers has thus far paid off handsomely. The enthusiasm and vigor these people have brought to their work has helped put us ahead of schedule. For example, the entire payroll operation is now ready to be handled by a 7070 at the Datacenter, more than six months before we receive delivery of our own machines.

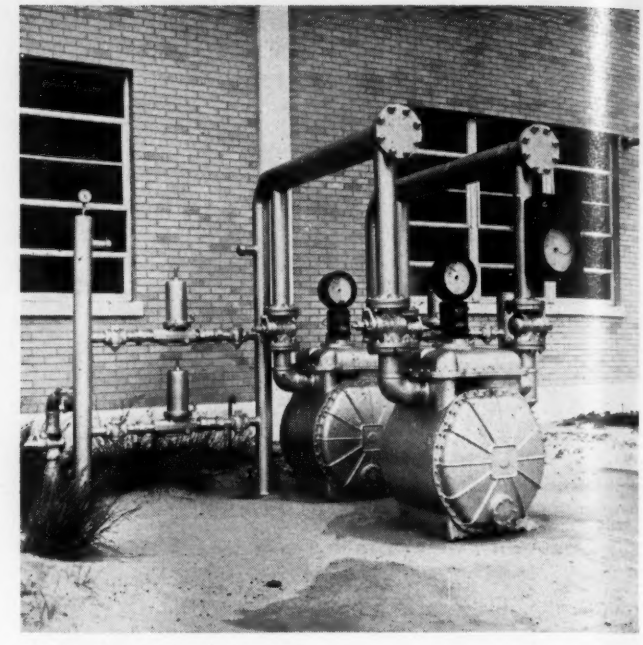
Brooklyn Union programmers Ann Iervolino (seated) and Diana Milgram make a last-minute check of instructions in the SURE program before a Datacenter test run. SURE was easily tailored by Booklyn Union's data processing team to exactly fit the company's customer billing requirements.

We shortly expect to realize significant benefits in our customers' accounting operation: a reduction in customer billing time, increased accuracy in bill calculation and preparation, and the production of valuable reports which could not be undertaken economically with our former punch card system.

It was only natural that our continued efforts over the years to improve systems and reduce costs through the use of mechanical accounting devices would culminate in the utilization of a high speed computer. All levels of our management feel confident that the IBM 7074 computer will enable us to continue these cost-reducing efforts. One fact seems certain — the only limiting factor is our own imagination. ★



Walter V. Truitt, chief stationary engineer for West Coast Division, inspects telemeter receiver in Estuary dispatching station. Pressures and flow from entire distribution system is received at this point; pilot loaded regulators can be operated remotely.



University of South Florida, near Tampa, uses gas for air conditioning, heating, and boiler fuel. This installation includes PD iron-case meters, base pressure indexes, volume and pressure gages, regulators, and ambient temperature recorder.

WITH EXPANDING FLORIDA GAS MARKET . . .

Telemetering Helps Peoples Gas Keep Pace

N. H. Bollinger, Gas Engineer, Peoples Gas System, North Miami, Florida

Peoples Gas System, serving the greater Miami and greater Tampa areas of Florida, operated a manufactured gas distribution system for 64 years before converting to natural gas in June 1959. The immediate and continuing load increase, the large area served, extreme highs and lows in short periods, and the necessary use of old cast iron mains in certain sections created a demand for an instantaneous information system that would help gas dispatchers keep ahead of demand changes and pressure drops. A multiplexed telemetering system has provided the answer to many of these problems.

People's operates two divisions: The East Coast Division, with headquarters in North Miami, serves the area from greater Ft. Lauderdale in Broward County to the south end of Miami Beach in Dade County. The West Coast Division serves the city of Tampa and surrounding communities. Both divisions converted to natural gas at approximately the same time, climaxing a year's preparation of converting equipment and the consumers' appliances and equipment to handle natural gas.

East Coast Division

The East Coast Division is an intermediate pressure distribution system, averaging 25 psi, that serves an area 40 miles long by 9 miles wide. Peoples has a favorable and growing commercial load in the East Coast Division, even though few of the large industries in this section of Florida are located in our service area. Gas appliance sales have increased tremendously for both original and replacement residential equipment now that natural gas is available. We have also been successful in selling gas furnaces as original equipment in new housing.

Our gas load has greatly increased since natural gas came to the area, and we have a continuous expansion program to keep up with demand. The residential load alone increased 39% in cu ft for 1960 over 1959. Many new commercial customers have been added, such as the fabulous Fontainebleau Hotel in Miami Beach that uses gas for its kitchen and boilers.

This increase in gas sales is not without its problems, however. For example, a change in wind direction in the winter months can cause an extreme drop in temperature in a short period of time. The high and low 24-hour gas volumes for a month may occur within a 48-hour period due to a sudden cold snap.

In January, 1960, for example, the lowest volume for any 24-hour period

was 56,519 therms. (One therm equals about 94 cu ft at base conditions.) A few days later the highest 24-hour period of the month occurred with consumption at 170,859 therms. Such fluctuations allow little time in which to boost line pressures and prepare for an extreme demand change.

We rely on telemetering to keep us one step ahead of sudden demand changes and balance our gate station delivery. Without it, many more men would be required to efficiently operate the system, and the information would be even slower in arriving at a central control point to allow an increase in pressures to prepare for a sudden drop in temperature, or reduce pressures when the heat load falls off.

The following is a brief description of the East Coast Division telemetering system:

The **dispatching station** is centrally located at our Fulford plant in North Miami. Our telemeter receivers, remote counters from the *Telecounter* transmitters on our check meters, and control switches for the ATC remote pilot units on our station regulators are located here.

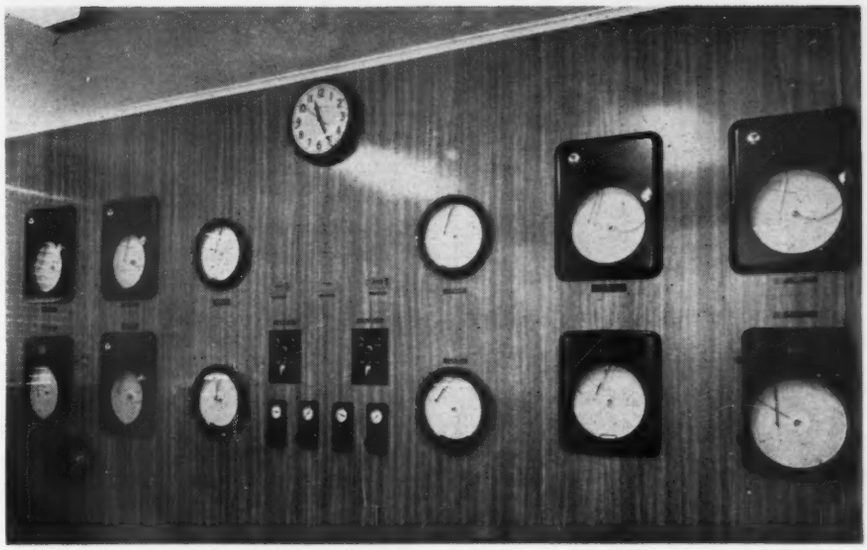
Gas is purchased from the Houston Texas Gas and Oil Corporation at three city gate stations and fed directly into the distribution system. These are North Miami Station, Dania Station, and Miami Station. All are equipped with telemeter pressure transmitters and *Telecounter* units.

Telemeter pressure transmitters are used to check distribution pressures of the entire system and are located at the following stations: Lauderdale Beach, Cox Plant, 63rd Street Station, and the Miami Beach Station.

With these transmitters sending continuous information to the Fulford dispatching station, we can recognize immediately a sudden demand change by the changes in line pressure.

The pilot loaded station regulators can also be operated remotely from the dispatching station by ATC remote pilot units. The dispatcher thus has complete knowledge and control of the system and can anticipate and correct most troubles before they develop. All of the telemetering equipment was supplied by American Meter Company.

Equipment in operation at the Dania Gate Station, typical of our other two gate stations at North Miami and Miami, includes 0-200 psi inlet and 0-100 psi outlet pressure telemeter transmitters; 100-in. and 20-in. double integrating orifice meters in a duplex setting with *Telecounter* transmitter; 100-in. integrating orifice meter for the secondary run; an American differential value to operate the secondary run; an ATC remote pilot unit to operate the pilot loaded regulator; and an American temperature recorder.



East Coast Division dispatching station provides complete information on entire division. It gives advance warning of sudden demand changes and isolates possible trouble spots. Total flow from purchase check meters is received continuously on counters from remote telecounter units.

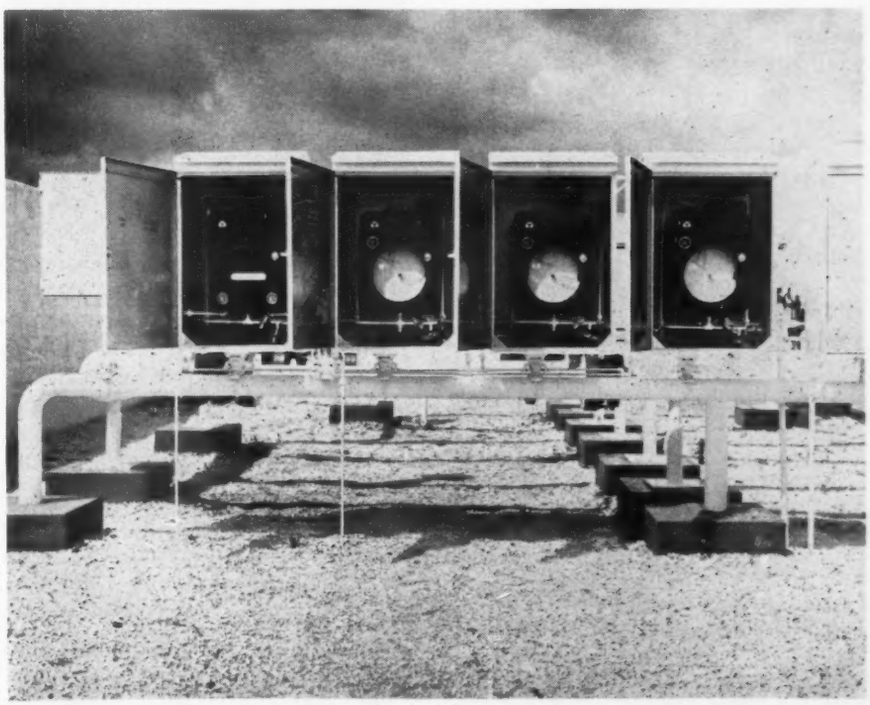
The duplex integrating orifice meter installation is our check meter for the primary run. Total flow from these meters in actual cubic feet is transmitted by *Telecounter* to the dispatching station. We purchase gas at 100 psi, reduce it to 25 psi and feed directly into the distribution system.

At the distribution pressure check points, such as at the Lauderdale Beach station, 0-100 psi Telemeter transmitters send line pressures to the dispatching station.

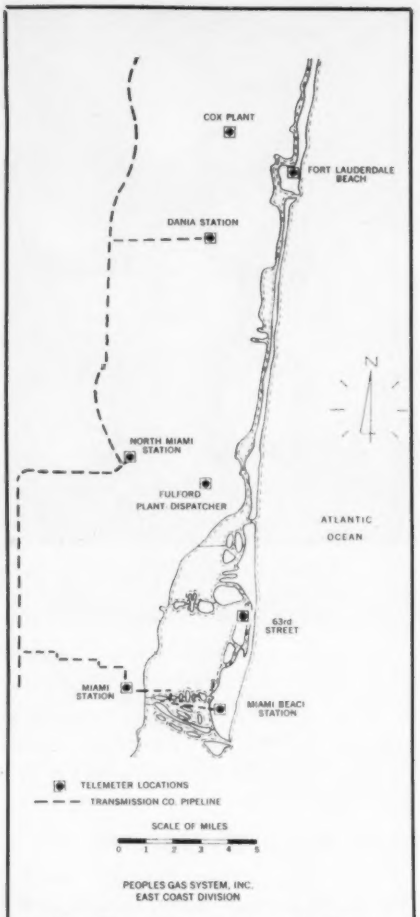
West Coast Division

The West Coast Division serving Tampa is another story. Tampa is the industrial center of Florida and the gas load has increased largely due to the addition of new industrial loads.

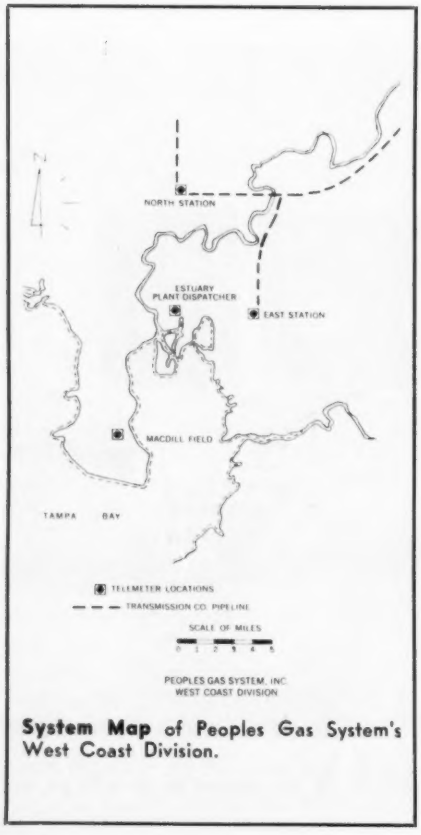
Since conversion to natural gas, the total cu ft sales volume has increased



North Miami Station of East Coast Division is one of three gate stations where gas is purchased from Houston Texas Gas and Oil Corporation at 100 psi, reduced to 25 to 27 psi, and fed directly into distribution system.



System Map of Peoples Gas System's East Coast Division.



System Map of Peoples Gas System's West Coast Division.

125% in 1960 over 1959, and has increased 400% in a 2-year period!

We operate the West Coast Division using two separate distribution systems that are fed from both our belt line and industrial line. Industrial customers are supplied from the industrial line, which operates at 60 psi.

Among the industrial customers recently added are the Anheuser Busch and Schlitz Brewing Companies, who have just built new plants, using gas for their boilers and certain brewing processes; Borden Dairy Products, which uses gas for its pasteurization process and boilers; Florida Steel Corporation, our largest user, which fires its smelters and ovens with gas; American and Continental Can Companies use gas to solder their cans and for their unique lithographic processes that are responsible for many of the colorful frozen citrus cans you see; Thatcher Glass, which uses gas in the manufacture of Clorox, Wesson Oil, and beer bottles, and the University of South Florida, one of Florida's newest universities, which uses gas for air conditioning, heating, and boiler fuel.

With the continuing industrial growth of Tampa, we are looking forward to increasing industrial gas sales. The residential gas load has also been on the upturn since conversion to natural gas, and showed a 17½% increase in 1960 over 1959.

The West Coast Division purchases gas at two points — at its East Gate Station and North Gate Station. The dispatching station is located at the Estuary plant. Telemeter pressure transmitters and a regulator station are also located at the southern end of the system at MacDill Air Force Base.

The city distribution system is supplied principally by the East Gate Station. Gas is purchased at this point from Houston Texas Oil & Gas Corporation at 125 psi, reduced to 100 psi, and fed to the Estuary Plant. At this point the pressure is reduced again, to 4½ psi, for the city distribution system, and reduced to inches of water for distribution to Ybor City, an old section of Tampa with cast iron mains having jute and cement joints. The gas also goes through foggers and humidifiers at Ybor City because of the old mains in certain parts of the city.

The East Gate Station also supplies gas for many of the industrial firms mentioned earlier.

North Gate Station, the second purchase station, also supplies a belt and industrial line. The belt line at this station, however, does not feed directly into the distribution system. It drops to the extreme southern end of the system to a regulator station at MacDill Air Force Base, where the pressure is reduced to 4½ psi. It can be cut into the city distribution system at this point in case of sudden demand increase and pressure drop in the city mains.

Estuary dispatching station is the data gathering and control center for the West Coast Division. Located here are the telemeter receivers, remote counters from the *Telecounter* transmitters on our check meters, and the control switches for our remotely operated pilot loaded station regulators. North and East Gate Stations, the Estuary Plant, and the MacDill regulator station are equipped with telemeter transmitters for inlet and outlet pressures. All check meters are equipped with Telecounter units.

For check meters, we use modified double integrating orifice meters that provide a counter reading in actual cubic feet of gas at base conditions. This eliminates the need for calculations and the application of an orifice constant to obtain flow in actual cubic feet. This information is then sent by *Telecounter* to the dispatching station.

A typical system installation is our North Gate Station, where we have three 0-200 psi telemeter transmitters for station inlet pressure, industrial line outlet pressure, and belt line outlet pressure; 100-in. and 20-in. double integrating orifice meters with *Telecounter* unit, in a duplex setting as described earlier; a 100-in. double integrating orifice meter for the secondary run; an American differential valve to operate the secondary run; an ATC remote pilot unit to operate a pilot loaded regulator; and an American temperature recorder.

Telemetering has proven economical and the only practical means to keep our system operating efficiently. It alerts the dispatcher to troubles on the system before serious problems develop. It allows him to keep pace with sudden demand increase by providing sufficient time to boost line pressure and flow rates. We can confidently supply interruptible customers with maximum sales and provide the best possible service since we are receiving instantaneous information and can keep accurate track of our demand contract.

In general, the use of telemetering by Peoples Gas System provides a means for operating our systems at peak efficiency with the least amount of worry. ★ ★ ★

Plastic Pipe Speeds Installation of Gas A/C Chilled Water Lines

Up to 90% reduction in labor and 50% cut in material costs on installing condensing and refrigerant lines for large home air conditioning units is being realized by Lone Star Gas Company through the use of plastic pipe.

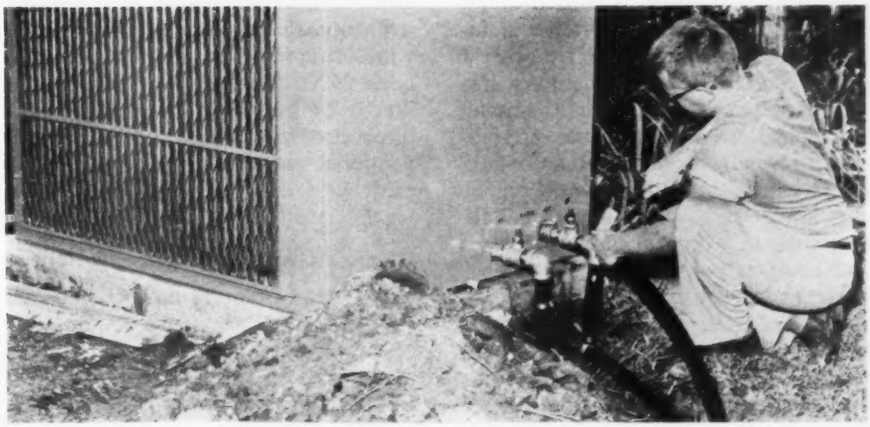
At Greenville, Texas, Lone Star uses between 20 and 200 ft of Republic Steel Corporation FE polyethylene plastic pipe at each job site, depending on requirements. The flexible pipe is swerved around obstacles along the route between the conditioning units and the houses. In contrast, conventional pipe would have to be cut, routed around obstructions with the aid of tees, couplings, and elbows, thus consuming more time, material and effort.

Most of the all-gas-operated air conditioning units require 1¼-in. plastic pipe. Workmen use a knife to cut the plastic to proper length — no special cutting tools are needed.

To connect the ends of the pipe lengths, the pipe is clamped over a plastic coupling inserted into the pipe ends. Generally, the line is installed deep enough to keep it out of the reach of spades and other garden implements. In most cases, a two-man crew can install a unit and its condensing lines to the house in less than half a day. Where insulation is required the plastic line is slipped into a large diameter flexible pipe insulation material.

The plastic pipe, a polyethylene formulation, is not affected by moisture, fertilizers or acids that corrode other pipe materials and there is no chance of corrosion by electrolysis. The pipe, shipped from the mill in 100-ft coils, has a 75 psi pressure rating for the chilled water handling application. ★

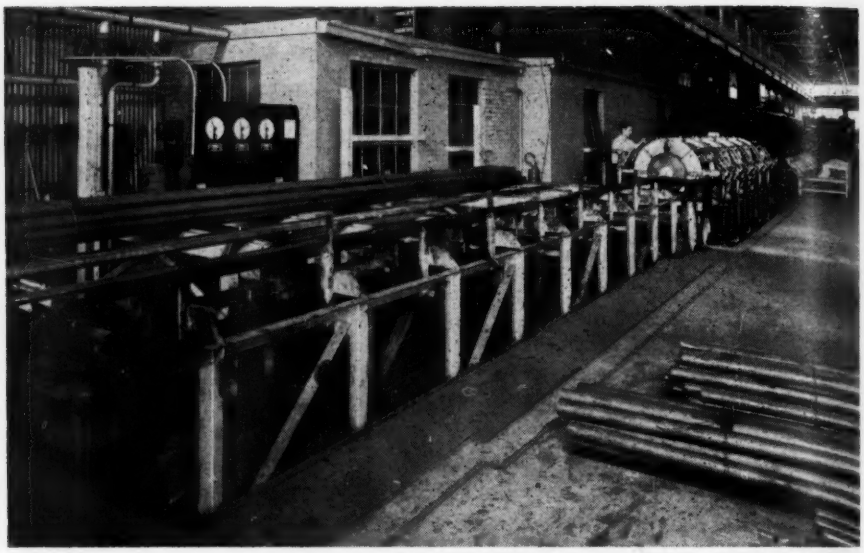
Makeup of connections is simple, requires few tools — such as knife for trimming pipe ends and screwdriver for fastening clamps.



nstaller connects polyethylene ine to water outlet of gas-fired esidential air conditioner.

Gas-Fired

Versatile Barrel Furnace Line



Compact, 2000 lb per hr gas-fired heat treating furnace line at Stainless Steel Division of Jones and Laughlin Steel Corporation. Temperature control panel and fuel manifold with motorized valves are visible behind run-in tables at left of photo.

R. E. Buckholdt,
Manager, Furnace and Kiln Division, Selas Corporation of America, Dresher, Pennsylvania

A modern gas-fired barrel-type furnace installation, requiring less than one-fourth the floor space of conventional furnaces of equal production capacity, is providing a better product, at less cost, to one of the midwest's largest producers of stainless steel bars.

The Stainless Steel Division of Jones and Laughlin Steel Corporation uses the barrel-type continuous furnace for annealing stainless steel bars in its plant near Detroit, Michigan. The furnace line, designed and built by Selas Corporation of America is used to anneal several grades of 300-series stainless steel bars in the hot rolled or cold drawn condition, and to normalize other grades of steel. Among the many advantages are high, accurate production in small floor space, automatic operation with very simple control equipment and versatility to handle bar stock of a variety of shapes, sizes and composition.

Hexagon, square, and round bars are, in general, the shapes annealed in the Selas barrel-furnace line. These range in thickness from ½ to 4⅝-in. with the greater tonnage close to the 1¼-in. size. Each size travels at a different speed, the larger sizes at the lower speeds. As an example, 1-in. bars travel at 4 fpm, producing 700 lb of treated bars per hr, while a 4-½ in. bar travels at a speed of 6 fpm, resulting in production of 2000 lb per hr.

Small Floor Space

The equipment is unusually compact. The barrel-type installation is made up of five separate heating units and an annular quench ring, making a heating machine 20 ft long by 5 ft wide. Run-in and run-out tables are each 25 ft long, for a total length of 70 ft. This line treats as much as a direct-fired continuous furnace of conventional design that is 120 ft long by 12 ft wide.

Heats, Quenches Automatically

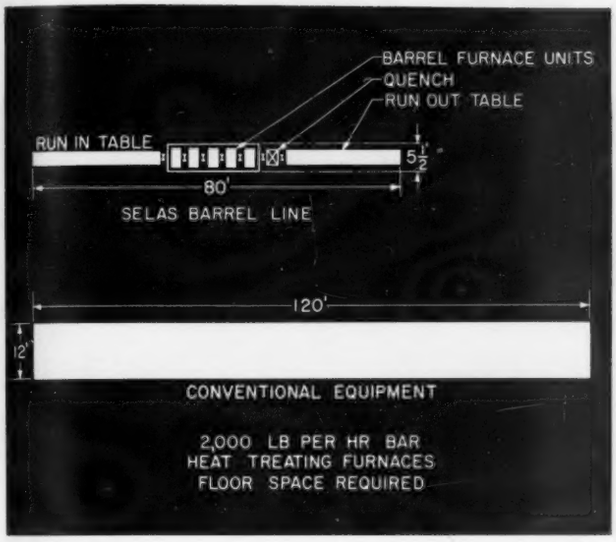
One man operates the entire barrel furnace line. Except for loading, all operations are continuous and automatic. The operator places a bar on a feed conveyor. This runs the bar into the furnace, where it travels through on rolls synchronized with the conveyor. As the bar leaves the furnace, it passes through the funnel-shaped quenching ring where a large flow of water under controlled pressure on all sides of the bar effectively quenches the bar. A 5-in. extension of the vortex funnel provides further cooling to assure that the bar is completely quenched.

After the bar leaves the quench, the discharge conveyor quickly transfers the bar away from the quenching area. This conveyor operates at approximately 10% greater speed than the furnace conveyor and serves to pull the quenched bar away from the one being quenched and allows the kick-out mechanism to clear the discharge table while the following bar is being quenched. In this manner, bars can follow each other through the furnace butted end to end, permitting greater efficiency.

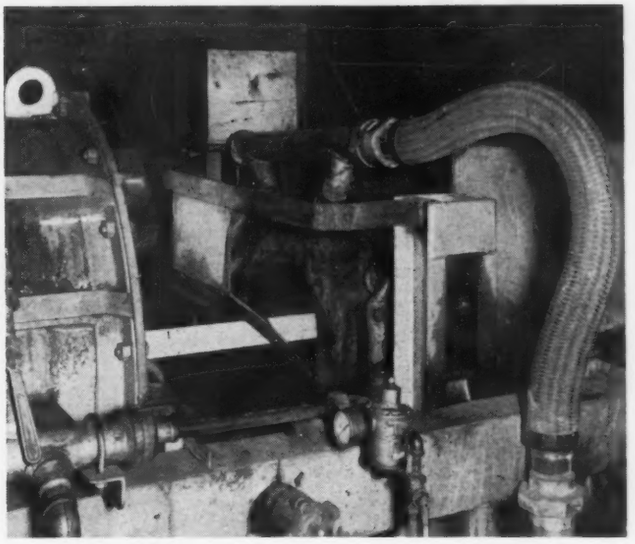
Alloy Cuts Maintenance Costs

Bars are carried through the furnace

Improves Steel Bar Production



Schematic diagram of floor-space requirements for barrel furnaces and conventional equipment of equal capacity.



Close-up of bar between furnace and quench ring illustrates uniformity of heating and clean surface.

on 12 short, single-groove, water-cooled alloy rolls that are less than 3 ft long. Five of the rolls are in the heating chambers and seven located between and at both ends of the barrels. Replacement costs of this, the only high temperature alloy in the furnace, are minimized because of the small size. Alloy life is expected to be greatly extended, due to the light weight each roller carries (4½ ft of bar) and to the fact that rollers are water-cooled. The exact saving has not yet been established since the original rollers show no sign of wear or deterioration during the time they have been in use under full production conditions.

The rollers are 4½-ft apart, center to center, setting a minimum of 9 ft for bar length.

Controlled Combustion

The high production and uniform treatment that characterize this gas-fired furnace are based on close control of heat release and heat transfer.

Natural gas from the low pressure plant line is mixed with air drawn from the room in a Selas gas combustion controller, which holds the 1:10 gas/air ratio and preset mixture pressure, despite wide variation in demand. The flow of fuel mixture to individual burners or to an entire furnace zone may be adjusted or shut down (manually or by automatic temperature control equipment) without affecting the operation of the other burners or zones.

The mixture is burned in ceramic-lined, cup-shaped *Duradiant* burners. The ceramic lining becomes radiant, which speeds the combustion of the fuel mixture and provides for transfer of a major proportion of the heat to the workpiece by radiation. The combustion zone is held close to the burner cavity so that there is no flame impingement on the workpiece, although the burner is within 4½-in. of the surface of the largest size bar.

The bar is actually heated in an atmosphere of neutral combustion products. The short exposure in this atmosphere prevents formation of scale on the bar surface.

Eight burners are arranged in the wall of each of the five barrel units so as to direct heat on the workpiece from four directions. Continuous processing of bars in single file with uniform heating both above and below assures uniform treatment of all parts of all bars, from end to end and from bar to bar.

Average daily consumption of natural gas by the furnace is 38,243 cu ft (24 hr) of 1000 Btu per cu ft gas. Consumers Power Company furnishes the natural gas.

Automatic Temperature Control

Temperature control is in three zones. The first two barrel furnaces make up the first zone, the next two are the second zone and the last barrel furnace is the third zone. The first zone operates at approximately 50F lower temperature than the other two zones.

Stainless steel quenching temperature is approximately 1950F. At this bar temperature the average barrel-furnace temperature is in the neighborhood of 2150F. For some types of

DITCH FOR TRANSMISSION, YOU'LL DIG IT BETTER WITH

BUCKEYE 407 IS LARGEST SELLING LADDER-TYPE UTILITY DITCHER

The Gar Wood-Buckeye 407 is today's most modern general utility ditcher. Its acceptance has been greater than that of *any* competitive machine. From boom tip to crawler drive, every structure, every component of the 407 is designed specifically for fast, accurate, low-cost ditching.

The 407's live hydraulic boom crowd —powerful enough to lift the machine off the ground—operates normally at only 750 psi, half the hydraulic pressure of competitive makes. A single lever controls both hoist and crowd, simplifying work around underground obstructions. The conveyor is shifted electrically by push button—the operator never has to leave his seat. And the 407's unitized construction lets you replace or service parts without major disassembly, saves money on parts and labor, materially cuts downtime. Owners report up to 18% less cost per foot of ditch with the 407, plus more profit per job and more jobs per season.

World's Largest Ditcher, Buckeye 330, Unequalled for Cross-Country Work

The mighty Gar Wood-Buckeye 330, the biggest ditcher in the world, cannot be matched for cross-country speed and operating economy. It's an investment that means extra profit year after year. It's the *only* factory-engineered ditcher designed for pipe from 30" to 48" diameter. And it digs up to 11 ft. deep and 64" wide.

The 330 features a tail-shaft governed torque converter to instantly adjust horsepower to load... dual Torq-Matic transmissions to allow maximum flexibility under all operating conditions... hydraulic wheel and conveyor hoists for operation independent of all other ditcher functions. The truss-type excavator support frame, rigidly connected to the rugged truck frame—plus the dual-rim digging wheel —stand up under the toughest of cross-country conditions.

Buckeye 403 Is Today's Most Advanced Ditcher For House Connections

For service line and house foundation ditching, for *all* small ditch contracts, nothing yet designed can beat the Gar Wood-Buckeye 403. Built especially for stop-and-go ditching, the highly maneuverable, easily transported 403 cuts a straight and accurate ditch that virtually eliminates all hand finishing. It outdigs and outlasts every type of tractor-mounted backhoe or ditcher attachment.

The compact size of the 403 gives you maximum maneuverability in tight places. Its ladder-type design lets you dig flush with walls and sidewalks. The 403's high flotation crawlers protect lawns and sidewalks from damage, carry it through areas where rubber-tired machines become hopelessly mired. For low costs and high profits, bid with the Buckeye 403. It's the "biggest" little ditcher ever built.

DISTRIBUTION, CONNECTION: A GAR WOOD–BUCKEYE!

Buckeyes First in Ditching for More Than 60 Years

Buckeye ditchers have *always* set the pace! From the invention of the first ditcher in 1893 until today, Buckeye has developed *every* major ditcher advancement . . . power by gasoline—then diesel engines, crawler mounting, invention of the ladder-type ditcher, the pipeliner, trapezoidal and farm drainage ditchers . . . these are just a few examples of Buckeye's constant leadership in ditcher engineering.

Today this experience is paying off big for pipeliners, contractors, and utility companies. The proof is in high production and low operating costs. Your Gar Wood-Buckeye dealer has that proof. Let him show you today's finest, most advanced ditchers –the Gar Wood-Buckeye line. *No matter what kind of ditch you need, there's a Buckeye that can dig it better, faster, cleaner, and at lower cost* than any other machine you can buy.

GAR WOOD-BUCKEYE 318 WORLD'S FASTEST, MOST RUGGED PIPELINER

The 318 is packed with Buckeye firsts! It's the only production ditcher equipped with a torque converter . . . the first large-capacity pipeliner compact enough to be transported on a standard low boy . . . the first with a tail-shaft governed power train. All these features, plus a hydraulic wheel hoist and conveyor drive, are *standard equipment* on the 318.

Gar Wood-Buckeye built this ditcher to handle a wide range of pipeline work faster, more efficiently, and more economically than any other ditcher ever offered. Its performance has been proved on spreads throughout the United States. With the torque converter, modern low-pressure hydraulics, and the specially designed Buckeye power train at work, the 318 keeps pipeliners well ahead of schedule and well in the black.

Buckeye 308 Is Built for Versatile Operation

Designed for cross-country pipelining, as well as gas, water and sewer lines, the Gar Wood-Buckeye 308 cuts easily through anything on your spread—caliche, coral, hardpan or rock. It combines power and ruggedness for high production with dependability for grueling day-after-day service. It gives a greater return on capital investment than any other ditcher in its class.

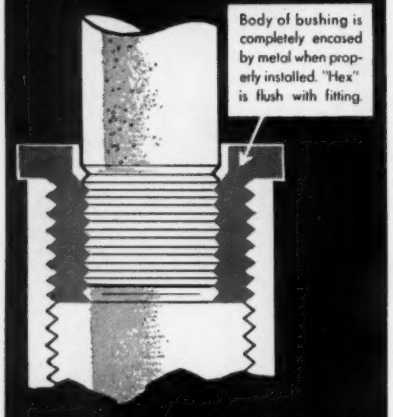
A hydraulic wheel hoist and conveyor drive are standard on the 308, offering completely independent operation. The tough truck frame and dual-rim digging wheel stand up in conditions too rugged for other machines. And the 308's engine operates at the torque speed best for combining greater lugging ability with lower fuel consumption. It delivers more horsepower than larger engines costing much more to operate and maintain.

GAR WOOD INDUSTRIES, INC.

Wayne, Mich. • Findlay, Ohio

MAYCO

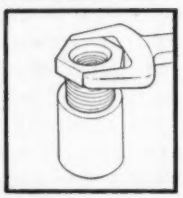
NYLON DIELECTRIC BUSHINGS



Stop Electrolysis!

■ Sandwiched between two dissimilar metals, Mayco nylon dielectric bushings prevent metal to metal contact – stop *electrolytic* action!

Able to withstand pressures in excess of 1000 lbs. and temperatures over 300°F, Mayco dielectric bushings gain added strength from clamping action of surrounding metal.



Most sizes also available with extra-heavy "Hex" to facilitate use of ordinary wrench.

Couplings and unions also available factory equipped with Mayco bushings.

Order Mayco Dielectric Bushings from your jobber or write to:

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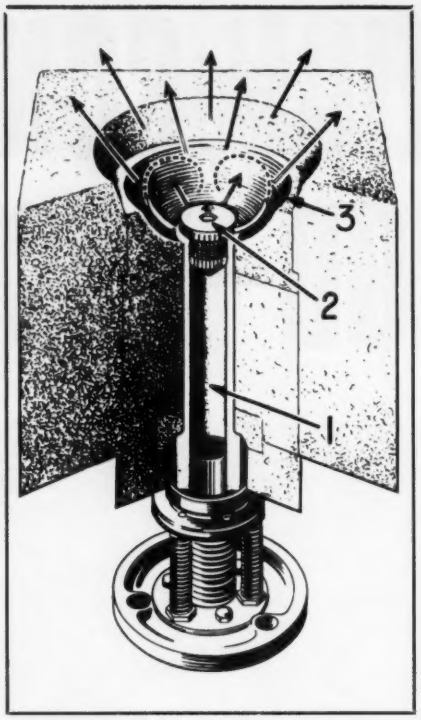


Duradiant burner used in barrel furnace line. Gas-air mixture burns within the cup (dotted line) eliminating sting-out, produces a radiant cup surface for fast, direct transfer of heat (arrows).

stainless, the bar temperature is as high as 2150F and for regular grades of commercial steels it is as low as 1700F. In these cases the barrel-furnace temperatures vary accordingly.

Rayotubes are used as the temperature sensing devices. Three are located to control temperatures inside the furnaces, and another is placed at a point just ahead of the quenching ring to indicate the actual temperature of the bar before quenching.

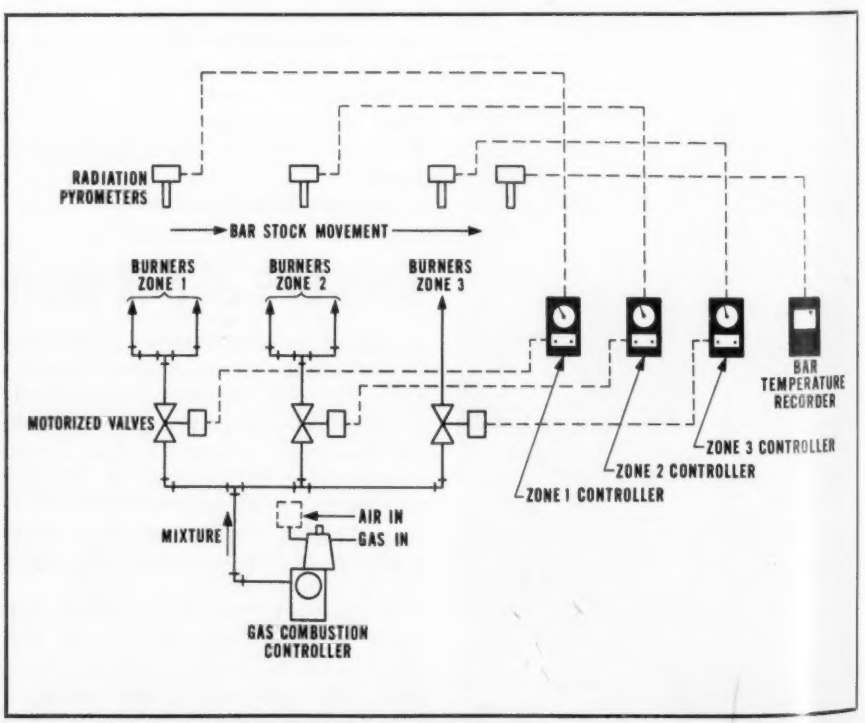
An indicating controller is provided for each zone, operating a motorized valve which regulates the flow of fuel mixture to that zone. Bar temperature is recorded on a strip-chart recorder.

Furnace Is Versatile

Among the features of the barrel furnace line is its versatility. Bar size and length changes require no adjustment except centering the quench ring. Only minor changes are necessary to change from annealing stainless to normalizing regular alloy bars. All that is necessary is to remove the quench ring and to place a fan in position to fast-cool the bars as they come out of the last barrel.

Other advantages of the barrel furnace installation are in the final finishing of the bars. By heat processing the bars individually, greater uniformity results. Less scale is produced on the bar surface because of the fast heating and because the radiant burners eliminate flame impingement. Less scale means that cleaning will be easier and there will be less possibility of scale pattern appearing on the bar surface after drawing. Cleaner surface after heat treatment results in better appearance on finished cold-drawn bars and requires less secondary finishing operations on the stainless bars.

Jones and Laughlin customers, in turn, receive highest quality bar stock at reasonable price. ★ ★ ★



Schematic diagram of fuel mixture and temperature control system.

Corrosion Clinic: Question & Answer Session No. 2

H. C. Van Nouhuys, Corrosion Consultant and Contributing Editor

Q Can both galvanic cell and electrolysis types of corrosion be detected by pipe-to-soil potential readings? If so, please explain the difference if any, in the type of values of readings.

A While nature's galvanic corrosion cells, due to differences in soil composition, moisture, aeration, etc., probably account for more leaks than do the man-made electrolysis type of corrosion due to direct current trolley systems and other d-c equipment, the latter difficulty — like the bull in the china shop — is usually more readily discernible.

Both types can be detected by pipe-to-soil potential readings. Normal galvanic potentials lie within the range −.20 to −.80-v. with reference to a copper-copper sulphate electrode. The high end of this range: −.60 to −.80-v. being the anodic areas. *(See March 1961 AGJ, page 31, Fig. 2).*

Electrolysis is evident when potentials range from −.20 v. to +1.00-v. or more; also, −1.00-v. and more, and especially if these potentials fluctuate.

Fig. 1 shows fluctuating pipe-to-soil potentials along a 4½ mile, 6-in. coated line in mountainous terrain passing beneath a d-c motor operated incline railway, and terminating near station 250+00 at a barge terminal on a river bank at a creek junction. Pickup of current occurred largely in the highly negative area from 50+00 to 125+00. Crossing under the incline RR trestle was at 130+00. Discharge of current was mostly in the low soil resistivity area along the creek as shown by the positive potentials which reached a maximum of +1.5-v., but also swung at this point to −1.5-v. The dashed line indicates steady potentials obtained after the d-c feeder line was abandoned and a cathodic protection rectifier was installed at the river terminal.

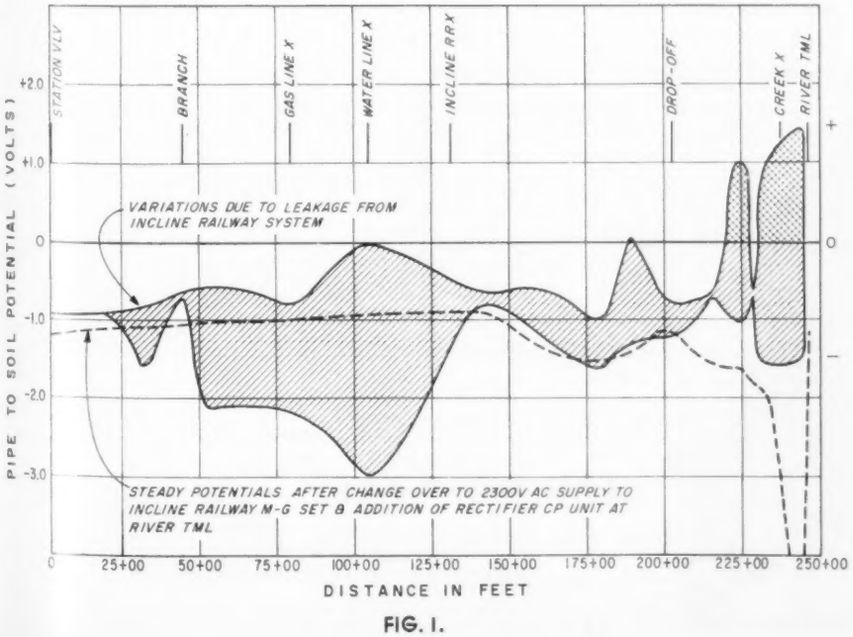


FIG. 1.

Q Is cast iron pipe subject to stray current electrolysis? If so, what are the criteria of a dangerous situation?

A Cast iron pipe using a leaded joint is more susceptible to electrolysis than when a mechanical joint is used. Field tests of the latter type indicate 0.1—ohm resistance across each joint, which is discouraging to flow of stray currents. Practically speaking, investigation is recommended of all cast iron mains crossing under electric railways or bare pipelines under cathodic protection. A criterion of a dangerous situation is a positive pipe-to-soil potential.

Measurement of the short circuit current between the structures will also give some idea of the magnitude of the problem. The current measured, of course, does not mean that the same current is discharging from the pipe when the bond is removed. If the bond current is sizeable, further tests are warranted such as measuring the IR drop in the pipe over a 100 ft distance each way from the crossing.

If currents are flowing from each direction toward the crossing, we assume this total current is being discharged from the pipe to the other structure and the pipe is pitting at the rate of 20 lb of iron per amp per year. Depending on pipe thickness, and on soil and coating conditions, a leak may occur in months, or it may take many years. If it were not for the joint re-

sistance in most cast iron piping, electrolysis damage would be much more common.

Q When taking pipe-to-soil potentials on a city gas distribution system, where should the copper-copper sulphate electrode be placed?

A First, with regard to the overall system, readings should be taken in all four quadrants of the city, both at and near the center, also at the city limits near the extremities of the mains in order to obtain an accurate representative picture of the situation. When a set of test points has been picked, these same locations should be used every time a recheck is made if optimum use is to be made of the data obtained.

Second, with regard to individual readings, if test points have not already been installed on the mains, and the services are welded directly to the mains, you may place the electrode over the service provided it has the same quality coating as was applied to the mains, and you will find approximately the same reading as when you place it over the main a few feet further on. This is assuming your pipe connection is being made at the meter.

If, as is often the case, the services are poorly coated and the mains well coated, the reading over the main will be more highly negative than over the service if the system is under cathodic protection. Economics will dictate whether it is practical to fully protect poorly coated services in addition to the mains.

If services are insulated at the mains, then the electrode must be placed over the mains and connections made to the mains if only they are being protected. It is good practice, however, to also check potentials over the services because through the years the insulators may deteriorate or be shorted out by lightning, which would result in the two readings coming much closer together in value, and would lower the protective potentials on the mains.

Summarizing — the electrode should be placed over the mains if only the mains are being protected, and over the services if they are included in the protection scheme. But, the testing should be done with intelligence, making allowance for special conditions.

Q Is it necessary to use some form of cathodic protection in a stray current drainage area where stray current is present for 5 to 6 hours each day?

A In the case of question No. 1, the incline railway operated about 16 hours each day and leaks occurred after 4 years of operation, hence on a six-hour per day schedule, you could expect the leaks to have occurred in 16/6 x 4, or about 10⅔ years.

If potentials are satisfactory for 18 to 19 hours a day, perhaps the least expensive first step would be to determine the effect of a simple bond wire from pipe to rail. If the low negative, or even positive, potentials during this period become appreciably more negative, then simply using a heavier wire may be the answer.

If improvement is only slight, the next step is to perhaps install an electrolysis switch in the bond wire circuit that will allow damaging drainage currents to flow off the pipe through the switch, but will prevent strays from coming onto the pipe in the reverse direction. If this gives improvement but still leaves unsatisfactory potentials, a rectifier can be connected in the bond that will force the necessary amount of drainage to give satisfactory potentials.

Another aspect that should not be overlooked is the installation of insulating flanges at strategic points in the mutual system.

In general, the preferable plan of attack on stray electrolysis problems is to first alleviate the situation by simple inexpensive means, which can be supplemented by more expensive sure-fire methods if necessary. * * *

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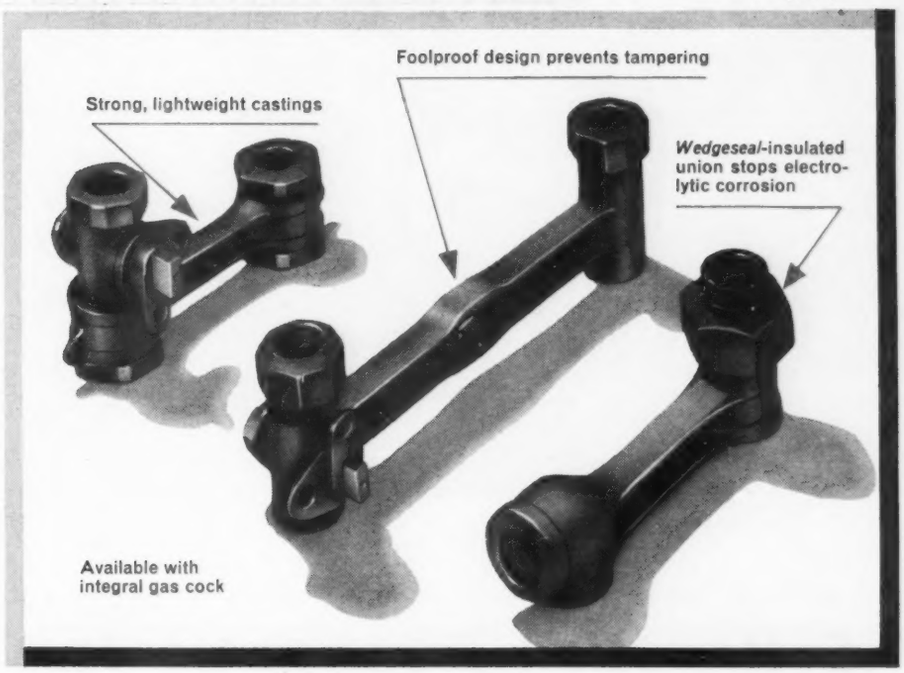
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Available with integral gas cock

Eclipse Rigid Meter Bars improve gas meter sets by reducing the number of threaded connections and make-up time. "Plumbers' nightmares" and on-the-job improvising are eliminated. Made from sound, strong, one-piece castings, Eclipse Meter Bars are accurately machined to hold alignment of the piping, speed installation and protect the meter from strains. Periodic meter changes can be made easily without disturbing the house or service piping.

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Union-type — with standard gasket union, brass-to-iron ground joint union, or with Wedgeseal-insulated union to protect mains and services from stray or induced house currents. Offered with top outlet, end outlet, or back outlet.

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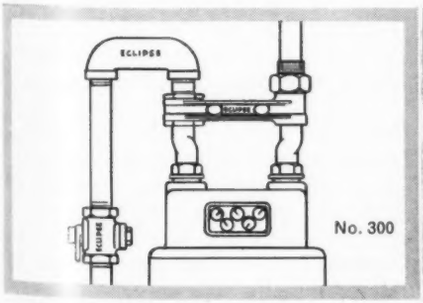
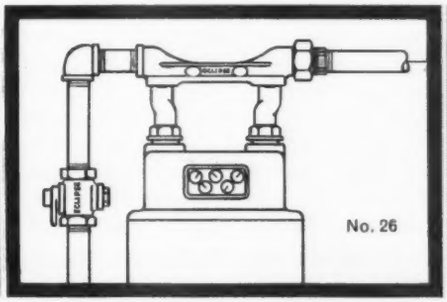
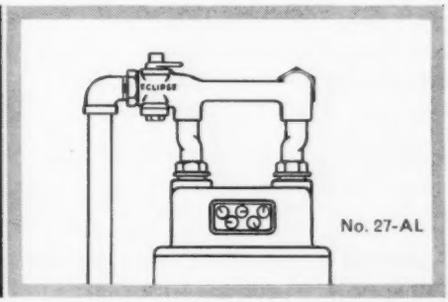


Top union outlet takes minimum space horizontally. Tapered sleeve for easy connection to service piping. Meter cannot tilt. Perfect where entrance to house is above meter set.



End union outlet takes a minimum of space vertically. Ideal for installations where outlet piping goes back underground, or where entrance to house is at the right of the meter.



Back union outlet for neat, compact installations where outlet goes directly back into house. Ideal for setting meters inside close-fitting protective domes.

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Pneumatic drilling. Leading the parade of activity on Peoples Gas Light & Coke Co.'s new $20,000,000 interstation main is a multiple pneumatic drill that bores three holes at a time in the pavement about 10 inches deep. This unit precedes main-laying crew by several blocks. The holes enable power shovel to break the pavement along a straight line.

Distribution Developments

NEWS ABOUT CURRENT AND PLANNED CONSTRUCTION

Prophetstown Natural Gas Co., Whiteside County, Illinois, plans to install a new distribution system to serve Prophetstown, and has asked the FPC to direct Natural Gas Pipeline Co. of America to connect and serve. Prophetstown, a subsidiary of Thermogas Co. of Des Moines, Iowa, plans to construct approximately 51,500 ft of 4-in. supply lateral and a distribution system at an estimated total cost of $353,000. Of this total cost, approximately $167,000 is allocated for direct costs of the distribution system — $19,056 going for 7940 ft of 4-in. steel mains; $56,325 for 43,550 ft of 2-in. mains; $40,300 for 50,500 ft of ¾-in. services and $2000 for 1500 ft of 1 and 2-in. service lines. Another $18,480 is tabbed for 612 services (costing $30 to $40 apiece); $7,200 for 10 "C, D, and E" services and $540 for 18 farm taps. Other pertinent costs are: $620 for 7 low pressure valves and boxes; $5000 for cathodic protection; $2000 for paving and sidewalk removal and replacement; $2160 for 180 ft of 8-in. conduit crossings; $1440 for 120 ft of 8-in. conduit crossings; and $864 for 96 ft of 5-in. conduit crossings. Approximately $2000 has been allocated for the town border station; $118,450 for the 51,500 ft 4-in. lateral; $750 for ¾-in. high pressure valves and boxes; $800 for odorizer, and $26,500 for engineering.

Dayton Power and Light Company, Dayton, Ohio, plans to install two new distribution systems in Waterloo, Lawrence County, and New Holland, Pickaway County, Ohio. Ohio Fuel, DP&L's supplier, plans to construct a 5-mile lateral to Waterloo from a connecting point on Texas Eastern Gas Company Station No. 17 on its main transmission line in Fayette County, Ohio. Companion filings by Ohio Fuel and Texas Eastern were made with the FPC early in July for approval to install metering and regulator station and appurtenant facilities.

Lone Star Gas Company, Dallas, Texas, has construction projects totalling approximately $1,250,000 scheduled in Dallas and West Texas. A 47,000 ft 24-in. line is being laid in East Dallas County in the vicinity of Buckner Boulevard at an estimated cost of $1,000,000. Capacity of the new line is 200,000,000 cu ft daily. Included in this project is installation of a measuring station on Old Scyene Road near the Dallas-Kaufman county line east of Mesquite, and a regulator station at James Street and Military Parkway. Construction of the new measuring station is part of a long-range $750,000 project in east Dallas County designed to eventually replace four Lone Star measuring stations located on Buckner Boulevard, Second Avenue, and in the Parkdale, Pleasant Grove areas. Construction is to be completed before December 1.

Lone Star recently added 200 customers to its system with purchase of Lakeview Gas Company that serves the towns of Lakeview and Plaska. Official transfer of the property was made May 23.

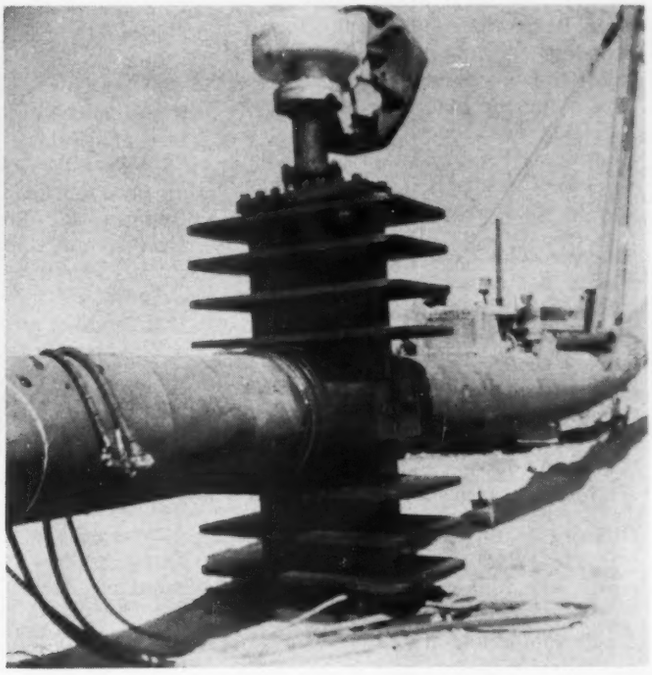
Atlanta Gas Light Company, Atlanta, Georgia, plans to extend natural gas service into Cherokee County and the residents of Canton, Woodstock, and Holly Springs. Estimated cost of construction is $950,000. Company has filed application with the Georgia Public Service Commission to extend its gas mains north from the Marietta area and to build distribution systems in the three towns. Pending approval, Atlanta Gas Light hopes to begin construction in August and complete the work within five to six months. Initially, approximately 2000 customers will be served in the three towns. *(PUG approval was secured July 17. Construction involves approximately 20 miles of 8-in. main to deliver gas to the three towns; main will run from north edge of Marieta to Canton.)*

In another project, Atlanta Gas Light has secured state PUC approval to serve Franklin in Heard County, but a supply allocation from Transcontinental Gas Pipeline Co. is now pending FPC okay. A lateral of approximately 2 miles will be installed. Construction of the system would cost $85,000 and if an FPC certificate is granted, work can begin this fall. An estimated 230 customers would be served initially.

In another project, AGL has filed a petition with the PUC for permission to build a $5,700,000 supply lateral to furnish natural gas to southeast Georgia, and principally Brunswick and Waycross where the firm currently supplies LP-gas. Proposed is a 12-in. line that will run from Chatham County near Savannah, 63 miles southwest through Bryan, Liberty and Long coun-

EL PASO NATURAL GAS COMPANY PROTECTS LINE VALVES WITH ROSKOTE COLD-APPLIED MASTIC

Roskote cold-applied mastic was spray-applied to 30" valves by El Paso Natural's personnel at Grants, New Mexico. Risers and support legs were coated with Roskote and wrapped with Royston Glas-Wrap for additional mechanical abrasion protection.



On the El Paso Natural Gas Company line being laid at Fort Stockton, Texas, by Western Pipeline Company, all 20" valves were spray-coated with Roskote cold-applied mastic.

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Distribution Developments

ties, into Wayne County near Jessup. From Jessup, an 8-in. line would continue 45 miles southwest through Pierce County into Ware to serve Waycross. Another 10-in. line would branch off about 41 miles to the southeast to serve Brunswick and Glynn County, including St. Simons and Sea Island. Approximately 5 new distribution systems along the main line also will be installed. The towns are Hinesville, Ludowici, Jessup, Blackshear, and Screven. Construction will get underway as soon as approved.

American Gas Company, Omaha, Nebraska, has construction underway of new gas distribution systems in three Missouri towns — Fairfax, Rockport, and Tarkio. R. E. Reutzel Co. Inc. of Fremont, Nebraska, is the contractor. Company plans to provide gas service in Craig, Missouri, Sidney, Tabor, and Hamburg, Iowa, and in 13 north-central Wisconsin towns.

Ottawa Gas, Ottawa, Ontario, Canada, plans to serve a new industrial customer, Dominion Magnesium Ltd., located 12 miles west of Renfrew. A 3-mile supply lateral will tap Consumers' Gas Company's new transmission line to Pembroke and Renfrew to serve Dominion. Eventually, the plant will use approximately one billion cu ft of natural gas annually. Natural gas will be used on a firm load basis in reduction and melting furnaces and on an interruptible basis in rotary drying kilns.

Consumers' Gas Company, Toronto, Ontario, Canada, plans to convert from propane to natural gas in the distribution systems of Hawkesbury, Pembroke, and Renfrew during the summer of 1961 as the result of a new 55-mile 8-in. transmission line now under construction from Arnprior to Renfrew and Pembroke. Contractors are Cormac Construction Limited, R. B. Somerville Co., Mid-Canada Contractors, and F. E. Shaw, Ltd.

In another project, company plans to build new distribution systems in two Ontario communities — Alliston and Beeton — as the result of a natural gas supply contract signed with Salada-Shirriff-Horsey Limited's instant mashed potato plant at Alliston that will use about 150,000,000 cu ft of natural gas annually for processing and space heating. This load will make it economically feasible to build an 18 mile, 8-in. transmission line from Consumers' station at Bond Head to Alliston.

Iowa Electric Light and Power Company, Cedar Rapids, Iowa, has received 25-year natural gas franchise for the first time in Conesville, and Nichols.

York County Gas Company, York, Pennsylvania, has construction underway on installation of a $12,000, 3700 ft 4-in. high pressure distribution main with 27 services in Hanover, Pennsylvania. Work to be completed about August 18 is being done by Hahn Construction Co. Also in Hanover; 2000 ft of 6-in. low pressure replacement main was installed at an estimated cost of $12,300. Contractor crews of Hahn Construction Co. completed work the last of July and moved on to a $14,500 installation of 2000 ft of 8-in. low pressure distribution main. Work is expected to be complete by the 25th of September. Company also plans a $50,000 installation of high pressure line (5200 ft of 12-in.) in East York, to begin September 1 and be completed by October. Work is to be done by Hahn Construction. In West York, company crews have completed a $25,000 project consisting of installation of 5600 ft of 6-in. high pressure main; crews plan to complete by October 1 another $14,400 project consisting of 3700 ft of 6-in. high pressure supply line in the Glen Rock, Pa., area.

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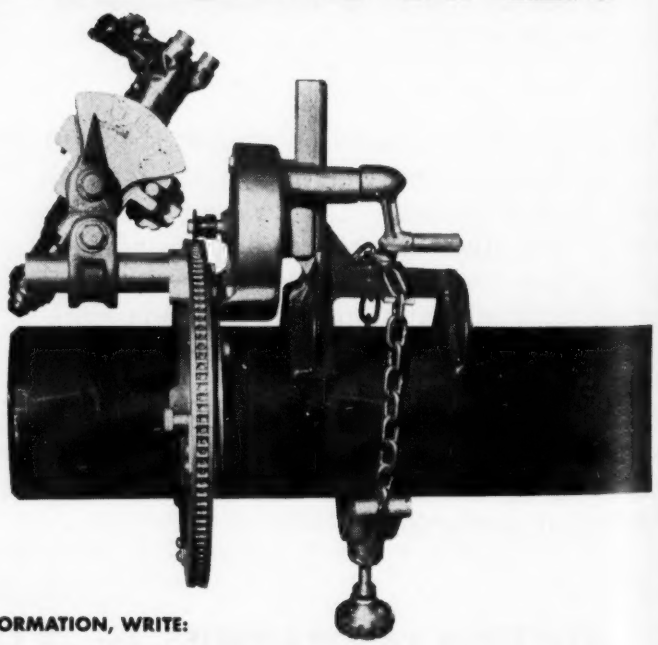

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Distribution Developments

Ohio Fuel Gas Company, Columbus, Ohio, would take over service of natural gas to 1500 consumers in and near Millersburg, Holmes County, and to 330 in and near Holland, Lucas County, under terms of an application filed in Columbus with the Public Utilities Commission of Ohio. O-F and Ohio Gas Co. *(companies are not affiliated)* filed a joint application for approval of the sale of properties by Ohio Gas to Ohio Fuel for approximately $628,000. The properties are remote from the center of Ohio Gas Co.'s principal operation at Bryan, and adjacent to areas served by Ohio Fuel.

Recently completed construction projects include: A $20,400 project to deliver more natural gas to Firelands High School and provide natural gas service for the new Firelands Jr. High to be built next year at Henrietta; involves 1¼ miles of 3-in. line laid north along Vermilion Road (Route 10) from an existing O-F line north of Garfield to the high school and site of the new junior high south of Milan-Elyria Road. New regulating station and town border station also were built. Don Miller, Inc. of Green Springs was the contractor. Work is to be completed by September 1.

Three projects involving a total cost of nearly $100,000 and located in varied sections of Greater Columbus recently have been completed. They include: 4800 ft of 4, 6, 8, and 10-in. line along Olentangy River Road from near Garrett Drive northward to Henderson Road at a cost of more than $27,000; 2 miles of 8-in. feeder line from Hilliard at a cost of over $57,000; and construction of over a half-mile of 6-in. along Livingston Ave. to extend service to the new Walnut Ridge High School and for future residential expansion in the area at a cost of more than $14,000. Ohio Pipeline Construction Co. of Newark had the Olentangy River Road contract while Don Miller of Green Springs was the contractor on the other two projects.

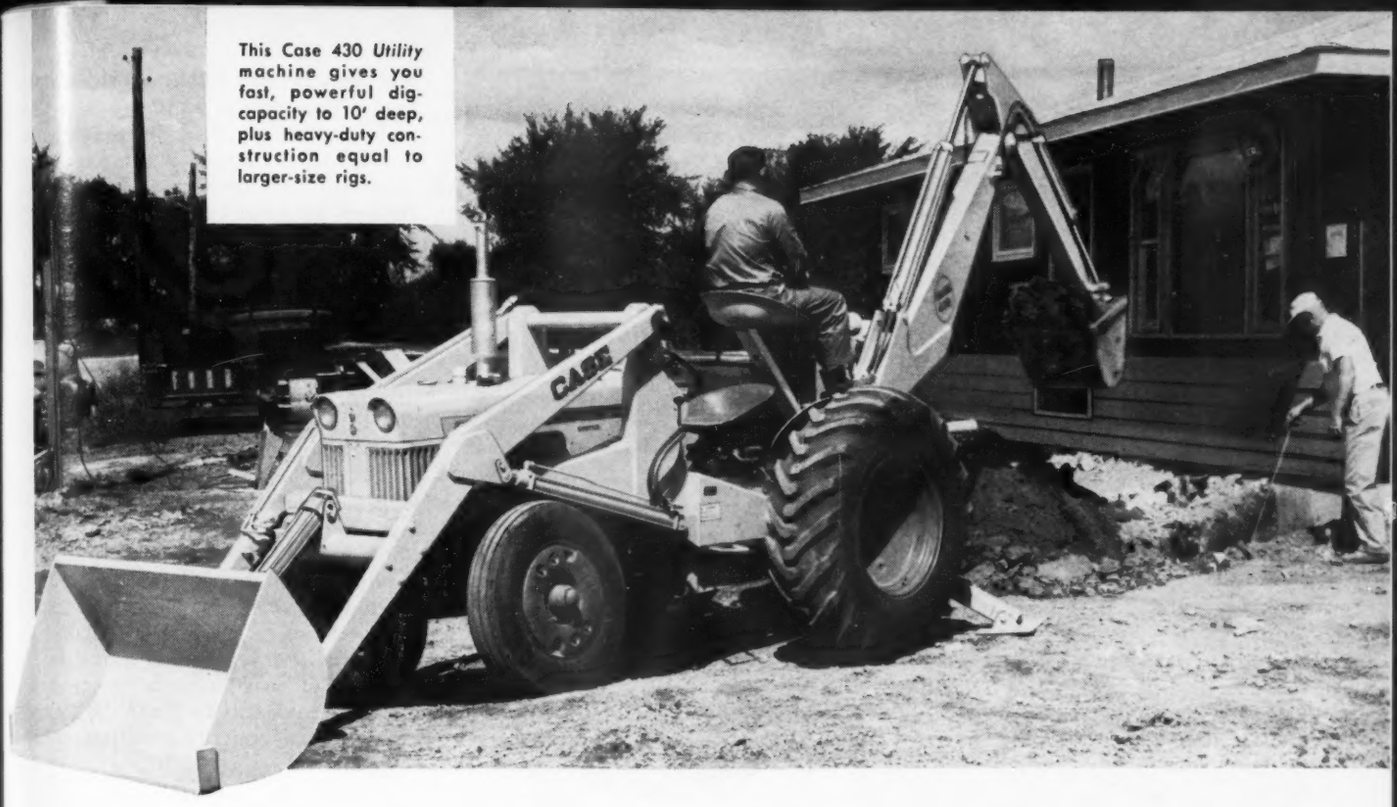
Other projects include a $31,300 line replacement project to improve natural gas service in Canfield that involves almost a mile of 8-in. line laid along Main St. from east of Palmyra Road to west of Broad Street. Wirt & Starn Inc. of Wooster was the contractor. A $20,600 replacement project to improve natural gas service in downtown Newark involved installation of ¼-mile of 6-in. line laid along an alley between First and Second Streets from Scheidler Street to north of Church Street. Ohio Pipeline Construction Co. of Newark was the contractor. Another $32,500 replacement project in Sheffield to improve natural gas service in Sheffield and Avon required installation of almost a mile of 10-in. line laid along Detroit Road east of Abbe Road to west of Case Road. Burkhardt Construction Co. of Avon Lake was the contractor. A $43,800 line to improve natural gas service to the southwest section of Columbus required 1½ miles of 6-in. line laid along Harrisburgh Pike between Briggs Road and Mound Street to replace a section of an existing O-F line. Ohio Pipeline Construction Co. of Newark was the contractor.

Other projects include a $21,000 relocation in Portage Twp. made necessary by reconstruction of Ottawa County Road 133 (Lockwood Road). Pipe location changes were made in two sections totalling 2365 ft of 8-in. pipe. Patrick Construction Co. of North Baltimore was the contractor.

A $16,400 project to deliver more natural gas to Reynoldsburg required more than half-a-mile of 6-in. line extending south to Route 40 (Main Street) from an existing O-F line north of Bridge Road and east along Main Street to Rose Hill Road. Ohio Pipeline Construction Co. was contractor.

Project to improve natural gas service in Cardington involved installation of gas pressure regulators at 270 homes at no cost to the consumer. The 270 homes are located on Morgan, Union, Reichelderson, Williams, Second, Third, Fourth, Gregory, Douglas, Washington, Cunard, Main, Depot, Walnut, Marion and Railroad Streets. Levering Brothers Plumbing and Heating Co. of Cardington was contractor.

Northwest Natural Gas Company, Portland, Oregon, has construction underway on two projects totalling $1,125,000 and has just completed another two estimated to cost $405,000. Construction currently underway by contractor crews of Lord Bros. is a $400,000 feeder main to supply St. Helena and vicinity; consists of 53,000 ft of 8-in. and 49,000 ft of 6-in. main. Completion date is set for October. The other project, estimated to cost $725,000 consists of installing 518,000 ft of ¾ to 6-in. mains and services to supply new customers in Northwest's service area during the last half of 1961. All work on this project is to be done by company crews. Recently completed was installation of an industrial feeder system to supply East Springfield area and involved installation of 22,400 ft of 8-in., 3200 ft of 6-in., and 30,750 ft of 4-in. high pressure main. Estimated cost of this project was $215,000; all work was done by Wildish Construction Co., contractor. Completed in August was a $190,000, 23,000 ft 12-in. final link in Portland metropolitan area high pressure belt line from Clackamas to West Linn, Oregon. This work was done by company crews.



This Case 430 *Utility* machine gives you fast, powerful dig-capacity to 10′ deep, plus heavy-duty construction equal to larger-size rigs.

why buy more "hoe" than you need?

DIGGING • LIFTING
HANDLE WITH CASE *Utility*
LOADING • CARRYING

There's no longer any need to invest big money in an "oversize" backhoe to get extra dig-power for *your* kind of work. As a free demonstration will quickly prove, the highly-maneuverable Case 430 *Utility* Backhoe-Loader will give you all the dig-depth, work capacity and heavy-duty construction you need — *plus* the budget-saving economy of a smaller, more versatile machine.

on trench-work Model 430's powerful hydraulics let you reach-out and dig over 15′ from pivot, *cut 10′ deep,* bite big bucketloads with up to 10,000 lbs breakaway . . . cast or load into trucks over 10′ high. You can dig extra "hole" per hour because *exclusive* foot-operated hydraulic swing speeds dig-dump cycles by leaving hands free to control bucket and dipper-stick while swinging. You save maintenance and repairs because 430 Backhoe is a "copy" of larger J. I. Case hoes . . . including boom, dipper-stick, and all 8 size buckets of extra-strength *alloy* steel.

on backfilling and clean-up, Model 430's husky 1200-lb loader is sized "right" for power, speed and economy. Equipped with *high-torque Case-built gasoline or diesel engine,* the stable Model 430 Tractor gives you low-maintenance design including 11″ ferrometallic clutch, high-strength "backbone", oversize rear and massive forged front axles, and many more big-tractor features.

See and try this first really heavy-duty 10′ digger in the low price field! Call your Case Dealer for free demonstration today! Or for complete information write J. I. Case Co., Racine, Wis., Dept J1731

CU-BL-301

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follow AGA recommendations with Eclipse-Norwalk check valves

Protection against reverse flow in gas lines. Part #4 Sec. 4.28 (A) "When gas equipment is to be installed which employs air or other gases at higher than normal gas pressures, suitable provision shall be made to protect against reverse flow of air in gas lines."

Disc-type. Ask for Bulletin MN-1000

Use Eclipse-Norwalk disc-type check valves in gas lines for full compliance with this standard. Horizontal or vertical operation. Aluminum discs standard (temp. to 200° F) — stainless steel discs (temp. to 400° F) available. Top entry to valve simplifies inspection and maintenance. Screwed or flanged construction from ½" to 16". FM approved.

Protection against supply pressure drop. Part #4 Sec. 4.28 (B) "When gas compressors or other equipment are used which might reduce supply pressures, suitable provisions shall be made to prevent dangerous pressure reductions on the inlet side of such devices."

Diaphragm-type. Ask for "Meter Cop" Bulletin MN-4000

Use Eclipse-Norwalk "Meter Cop" diaphragm-type back pressure and anti-suction valves. Soft seats assure positive shutoff with back pressures to 50 psi. Sizes from 1" through 6" screwed or flanged cast iron construction. Handle 500 to 10,000 cubic feet per hour. 1" WC vacuum shutoff standard. Temperatures to 200° F. FM approved.

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COMBUSTION DIVISION

ECLIPSE FUEL ENGINEERING COMPANY

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Export: Ad. Auriema, Inc., 85 Broad Street, New York 4, N.Y.

Northern Indiana Public Service Company, Hammond, Indiana, plans to build natural gas distribution systems in the 16 communities of Ligonier, Pierceton, Middlebury, Medaryville, Hebron, St. John, Lowell, Dune Acres, LaCrosse, North Webster, Cedar Lake, Michiana Shores, Lake Dalecarlia, Crocker, Wheeler, and Freeman Lake. Other plans include construction of four miles of 16-in. line to increase supply of gas to Crown Point; an 8-in. line to connect the recently-acquired North Manchester gas property to NIPSCO's system at Wabash, and the establishment of 4 connection points with the transmission line of Trunkline Gas Company to obtain best distribution of a new supply of natural gas.

New distribution systems were recently completed in Milford, Monticello, Fowler, Wolcott, Goodland, Kentland, Remington and Syracuse.

NIPSCO was recently granted a franchise to distribute gas to the southern Adams county community of Geneva.

Michigan Consolidated Gas Company, Detroit, Michigan, plans to spend approximately $21,882,000 throughout its system in the state to include 175 miles of gas distribution mains. The utility expects to add 12,200 new customers during the year. Approximately $12,000,000 will be spent in the Detroit district, over half the entire budget. Michigan will install 57 miles of mains and 55 service lines in this area. Major projects include $2,055,000 for a second gas main along Van Born Road from the Willow Run gas receiving station to the River Rouge station in Melvindale. The 36-in. steel main will provide additional capacity for supplying gas to Downriver and Western suburban areas. Company plans to spend $1,556,000 relocating gas mains as a result of express construction in Detroit. Another $440,000 will be required for expressway locations in Mich-Con's outstate districts. In the Grand Rapids area, company plans to spend $2,716,000 and construct 46 miles of gas mains. Expansion of the Ann Arbor facilities will take $1,280,000 and include the construction of 25 miles of mains. In Muskegon district, another 20 miles of mains will be installed at an estimated cost of $601,000. In the northern districts which include Mount Pleasant, Greenville, Belding, Ludington, Big Rapids, Cadillac, Tranverse City and Manistee, Michigan Consolidated will spend $1,092,000 and lay 27 miles of mains. The Production and Pipe Line department, which has charge of Michigan's gas production and transmission lines have planned to spend $4,282,000.

REDUCE GALVANIC OR ELECTROLYTIC ACTION

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DESIGNED FOR USE IN CONNECTING SIMILAR OR DISSIMILAR METALS IN GAS, AIR OR WATER LINES TO CONTROL ELECTROLYTIC OR CORROSIVE ACTION

EPCO DIELECTRIC PIPE FITTINGS ARE AVAILABLE IN MORE THAN 75 SIZES AND MODELS TO MEET YOUR REQUIREMENTS

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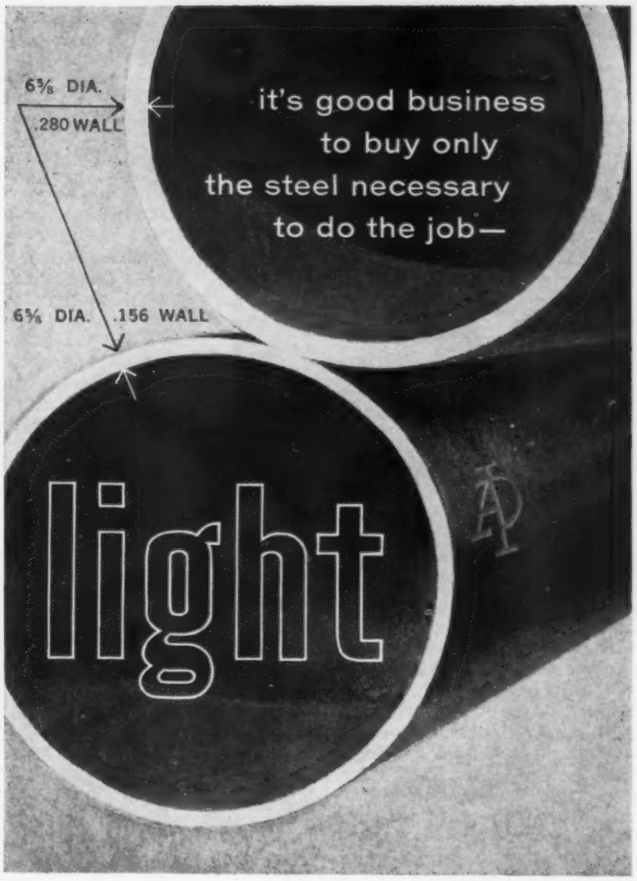

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Product Parade

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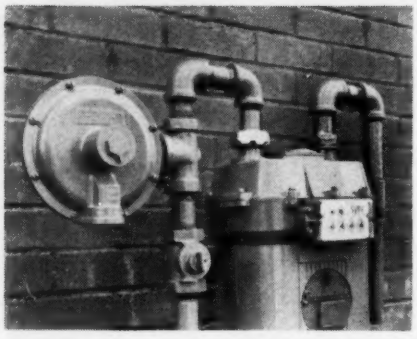
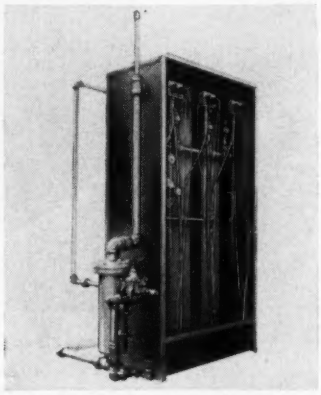


New compact house service gas pressure regulator designed to provide excellent regulation and capacity, designated Class 61 General Duty Regulator, is now available from Universal Controls Corporation. Easy installation and maintenance provided by practical features including long tube extension of the lower case that holds case in the valve body, allowing both hands to lock clamping ring in place without losing gasket. Regulator valve body is high-tensile iron, while valve stem and orifice are available in brass or aluminum. All steel parts are zinc plated or galvanized to protect against corrosion. Weather-and-bug-proof vent provided. Diaphragm is cotton fabric base synthetic. Full-capacity relief valve meets A.S.A. code requirements. **1**

Fiberglass cab utility truck. A new 4-man steel reinforced fiberglass cab . . . designed for the utility market . . . is now available from FWD Corporation. Announced at the AGA Distribution Conference, the new fiberglass cab is said to be designed and engineered from the ground up to solve special crew transportation problems. Floors, doors, bulkhead, engine, "doghouse" and structural members of the cab are made of steel for strength and durability. Cab shell and fender skirts are of fiberglass-reinforced polyester plastic. Cab provides sufficient room for comfortable seating of 4 men, yet overall cab width conforms to accepted highway standards. Is equipped with all-weather ventilation, with a controlled fresh air intake located above bumpers for relatively dust-free source of outside air. Engine and instrument group are easily accessible for maintenance and inspection; and because of its light weight cab can be tilted manually with ease for full access to engine when service is required. No power tilt is needed. **2**

Tanks of pure, solid copper reinforced with steel are featured in the new line of Ruud gas water heaters for commercial, industrial, and institutional applications. New line comprises 9 Copper Sanimaster models with tanks that are highly corrosion-resistant in most aggressive waters and will not rust at any temperature or under the most severe operating conditions. Units utilize hourly heat inputs from 55,000 to 360,000 Btu and deliver from 46 to 300 gal. at 100 deg temperature rise. Connected in duplex, triplex, and fourplex with Ruud Equa-Flow Manifolds for operation as a single unit, tops of 1,440,000 Btu input and hot water delivery of 1200 gal an hour are reached. **3**

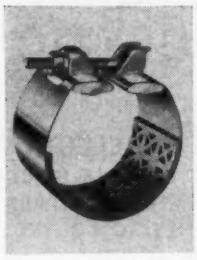


Direct-fired LP-Gas vaporizer that controls liquid on the inlet side has been developed by Ransome Torch & Burner Co. Unit does not have a return vapor line to rob pressure from the storage tank, thus enabling vaporizer to achieve a heat transfer efficiency of over 80% under normal operating conditions. Temperature design rating has been lowered to 20 F. Unit is listed under Underwriters Laboratories and all components of the new vaporizer are designed for safety and dependable operation. The counterflow principle of design feeds fuel down from top of unit to commingle with combustion products rising up from burner, thus contributing greatly to heat transfer efficiency rating. **4**

Pipe cleaning and tape wrapping machine developed by Crose-Perrault Epuipment Corp. uses twisted wire wheel type brushes revolving at high speed to achieve improved mechanical cleaning of pipe. Self-compensating brushes are long-wearing and economical to replace. New machine also offers lower fuel consumption and less weight than comparable conventional machines. Handles pipe from 3 to 6-in. **5**

Temperature compensation has been made available in American Meter's new AL-425 aluminumcase meter. New temperature compensating tangent, utilizing the same design principle incorporated in the American AL-250 aluminumcase meters, provides accurate gas measurement corrected to base temperature conditions. The rugged, light weight meter weighs 18 lb, operates at only 5 revolutions per cu ft. Has a rated capacity of 425 cfh at ½-in. w. c. differential with 0.64 sp gr gas. Maximum working pressure is 10 psi. **6**

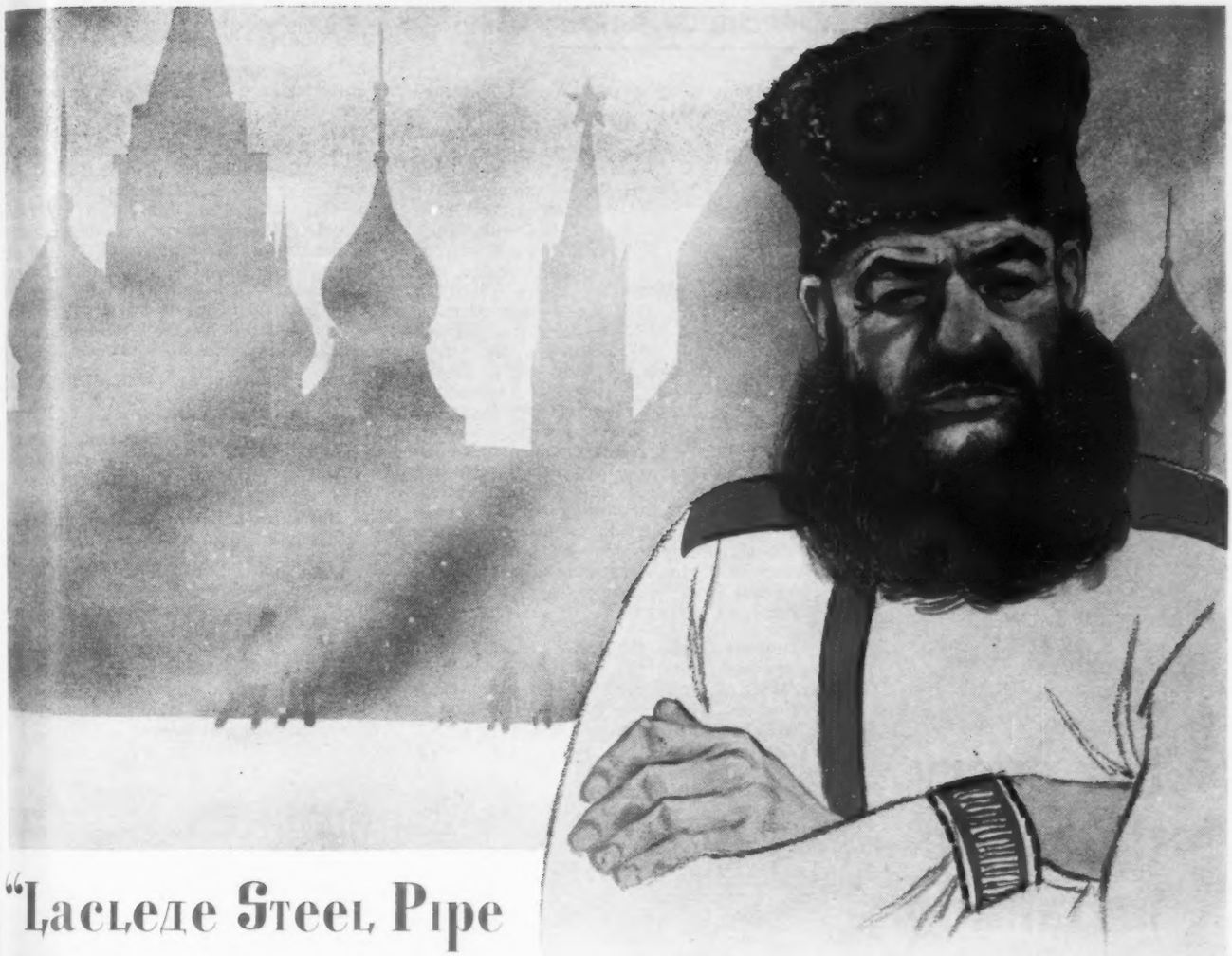
Marman pipe repair clamp is now available in wider range of sizes — from ½ to 24-in. in standard pipe sizes and from 2-in. thru 8-in. in O.D. pipe sizes. It can be supplied in 4 clamp widths from 3 thru 12-in. Emergency or permanent pipe repairs can be made with clamp. Stainless steel band resists corrosion and conforms to pipe contours and irregularities but will not collapse weak pipe. Malleable cast iron lugs provide extra strength and durability and are especially treated to prevent corrosion. Pivot-action of the lug tightens to pipe contour without biting into pipe. Synthetic rubber patch will not deteriorate and is resistant to a wide range of chemicals. **7**



1961 models of the Oliver crawler-tractor and companion loader feature a number of design improvements resulting from an intensive engineering program to provide even greater efficiency in Oliver's recent models. Among adaptations in the 1961 crawler tractors are new vibration-absorbing mountings for radiator, new main-frame and transmission case welding design, new type brake linings, new aluminized muffler, new transmission snorkel tube design for steep slope operation, and new warning safety devices for brakes and ignition switch. Improvements in the loader include new design of the loader arm mounting frame, which is built integrally with the tractor for maximum strength and wider operator vision, new 7-tooth self-equalizing bucket and bucket shake-out stop, new standard blower fan, and new control valve design. **8**

Slimline mobile radio set is newest model of VHF FM 2-way mobile communications equipment available from Aeronautical Electronics, Inc. New 15-watt mobile radio set is said to be both compact and light weight. Unit is less than 5 in. high, easily fits under-the-dash of any car or truck including new compact domestic or foreign types; weighs only 8 lb, 10 oz. Units have optional provision for a maximum of three transmit and receive channels, and provision for plug-in. addition of *Unicall*, Aerotron's selective call system that permits sharing of crowded frequencies without interference. **9**

Versatile 75-ton hydraulic pipe squeezer developed by Regent Jac Mfg. Co. is able to close 4-in. I.D. steel pipe in 125 seconds against 100 psi line pressure. Compact and easy to operate in confined areas, new unit is 30-in. high, 13-in. wide, and 7½ in. deep. Weighs 225 lb. Hydraulically powered jaws clamp and compress pipe to shut-off flow; hydraulic pressure is supplied by portable 5000 psi pumping unit. Unit is latest addition to Regent's line of pipe squeezers. Can be used to save time and money in emergency shut-off, to repair leaks or ruptures in service lines and mains, to close or open lines; and to line-up pipe for welding. **10**



"Laclede Steel Pipe
Should Have Taken the Tsembly Out
the Kremlin" *says Boris Tschilblainitch Frizyuhedov,*
prominent Slavic architect and engineer.

"The Tsar passed a law against winter some time ago, but it kept coming along, year after year. The Imperial Family complained that the Palace was too cold. Those drafty rooms had them shaking in their Astrakhans*. It's too bad we hadn't invented Laclede Steel Pipe for heating systems yet. Then we could have made it plenty hot for the Tsar, the Tsarina and all the little Tsardines. Nyet?"

**Siberian overcoat—What did you think?*

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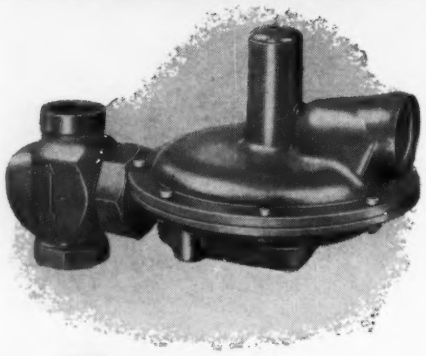
SERIES 1400 REGULATORS



For every domestic installation

ADAPTABILITY

Reliance Series 1400 Regulators are available in a wide variety of models. Designed for convenient installation, inspection and maintenance where space limitations are encountered.

VERSATILITY

Union-type, removable pipe section simplifies installation. Full 360° rotation of diaphragm section gives complete piping flexibility. Detachable meter bar available for compact, easy installation.

DEPENDABILITY

Manufactured in conformance with ASA Code B31.1.8-55. Maximum inlet pressure 125 psi.

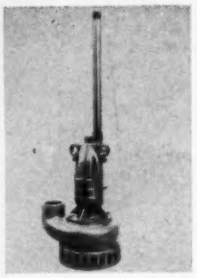
See Bulletins 100 and 102.1 for details.

AMERICAN METER COMPANY

Sales Offices in Principal Cities

PRODUCT PARADE

Portable sump pump. A self-contained portable pneumatic sump pump that resists corrosion and handles inflammable liquids safely has been announced by Schramm, Inc. New unit has wide application in removal of sewage, sludge, oil, or clean or dirty water from sumps, excavations, ditches, trenches, and cellars. Pump body, impeller, and strainer are made of bronze, to resist corrosion and to insure spark-free operation. As a result, chemical solutions and inflammable or explosive liquids can be handled safely. Requires no priming, pump is ready for instant use. Solids over ¾-in. are blocked out by integral bronze strainer. Pump speeds vary between 3200 and 3600 rpm, depending upon the head against which it is pumping and the supplied air pressure. 11



Improved index drive movement for small gas meters has been developed by Lancaster Meter Parts Co. Unusual combination of plastic worm gear and brass worm is said to assure smooth operation with a minimum of friction and reduce wear thereby increasing service life of the part in the meter. Other features include gear bracket that requires no lubricant, adjustable worm-axle, cadmium-plated steel housing body, leak-proof index box spring type packing for constant pressure on each end of the box, and flange-sealed hex stuffing box nut. 12

Balanced-opposed engine-compressor units designed for continuous, heavy-duty service by White Diesel Engine Division of The White Motor Co. is described in 4-page bulletin just issued. Literature summarizes features of the 2-, 4-, and 6-cylinder models, such as matched design of two components, the 200 to 1000 bhp range of the engine power, efficiency of direct drive for output control, and the flexibility provided by 68 standard cylinder sizes. Construction details are also summarized in capsule form, with appropriate illustrations. Both dimension and specification tables are shown. 13

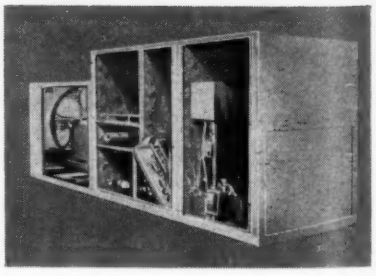
Catalog features Hydromatics' industrial Flo-Ball valve line. Included in the 16-page catalog are cutaway drawings, phantom and exploded views, materials-of-construction charts, pressure/temperature curves, and dimension tables and drawings. Catalog also features several series of top entry 150 lb ASA flanged valves, 300 lb ASA flanged valves, and 600 lb W.O.G. screwed-end bar stock valves. 14

Hydraulic backhoe. New Hyster hydraulic backhoe is designed to mount on Caterpillar D4 tractors, and Cat HT-4 and 955 Traxcavators. These backhoe-prime mover combinations provide sufficient tractor weight to allow full utilization of backhoe's 8000-lb breakout force. Hoe front can swing at full-rated speed of 5½ rpm thru 210-degree arc as same time bucket is being raised or lowered. New backhoe can dig to a depth of 12 ft, 6-in. and straight backwall dig to a 6-ft depth. Choice of 3 buckets is available, in widths of 16 in. (5.3 cu ft), 22 in. (7.8 cu ft), and 30 in. (13.5 cu ft). 15

gascool announces the FIRST ALL GAS HEATING AND COOLING COMBINATION now in service

MODELS AVAILABLE IN 5 TO 10 TON CAPACITIES

The new gascool roof-mounted unit heats with gas—cools with gas. Ductwork expense is eliminated — no floor space is required. Quick, easy installation and low maintenance costs combine to make a serviceable, economical unit. Individual roof-mounted units give insurance against total breakdown. And—gascool can provide you with a unit for cooling only, if desired.



gascool exceeds industry standards for quality, cooling, and dependability. And gascool is economical too — giving a savings of up to 61% in operating costs.

gascool's complete line includes models in 3 ton to 15 ton capacities with built in air cooled condensers, water cooled condensers, or remote type air cooled condensers; and roof mounted models with heating and cooling combination or cooling only in 5 to 10 ton capacities.

These features, plus others, make gascool the best buy.

QUALITY ECONOMY DEPENDABILITY

All are found in a gascool Gas Powered Air Conditioning System

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PRODUCT PARADE

Compact fire blanket that snuffs out flames quickly and completely from head to foot when clothing is afire is described and illustrated in new bulletin from Mine Safety Appliances Co. The 62 by 82-in. flame-proofed blanket is folded into pleats that permit packing into a compact red metal case that is attached vertically to a wall near danger points. Loop of fire-proofed rope extends outside the case. In an emergency, victim pulls on this rope which opens the door and permits pleated blanket to move forward as victim revolves, wrapping himself tightly from head to foot and extinguishing flames. **16**

Digital data application information. *Datex Digest*, a new quarterly company magazine from Datex Corporation, reports significant achievements in digital data recording and control. Free on request. **17**

New bulletin describing Rockwell's "243" service regulator for gas pressure control is now available. Regulator can be rotated 360 deg to any position to suit any type installation. Internal construction and regulator components are illustrated and described, as well as outstanding features and several specific applications, such as bakeries, laundries, and small compressor stations. The 4-page bulletin also lists important specifications. **18**

Folding gooseneck and lightweight trailers are described in new 6-page illustrated folder from Hyster Co., Martin Trailer Div. Folder outlines the safe, fast loading advantages of the gooseneck trailers and their operating ease. Available models of both the folding gooseneck and lightweight series are listed with carrying capacities. **19**

New catalog on 4-wheel drive loaders . . . just released by J. I. Case Co. . . has been designed for an easy performance and application reference booklet. Complete specifications on each of the 3 models manufactured by the company are listed in the 16-page catalog. **20**

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AN AMP OF PROTECTION IS WORTH MANY A POUND OF PATCH

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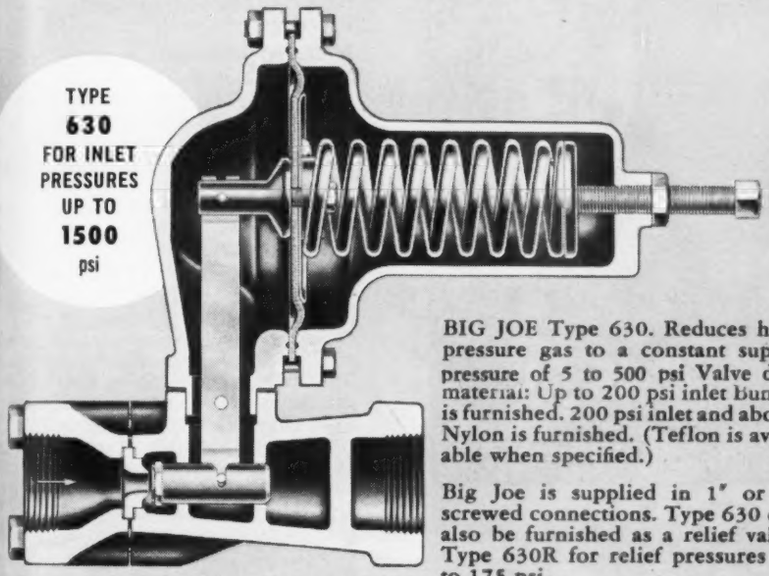
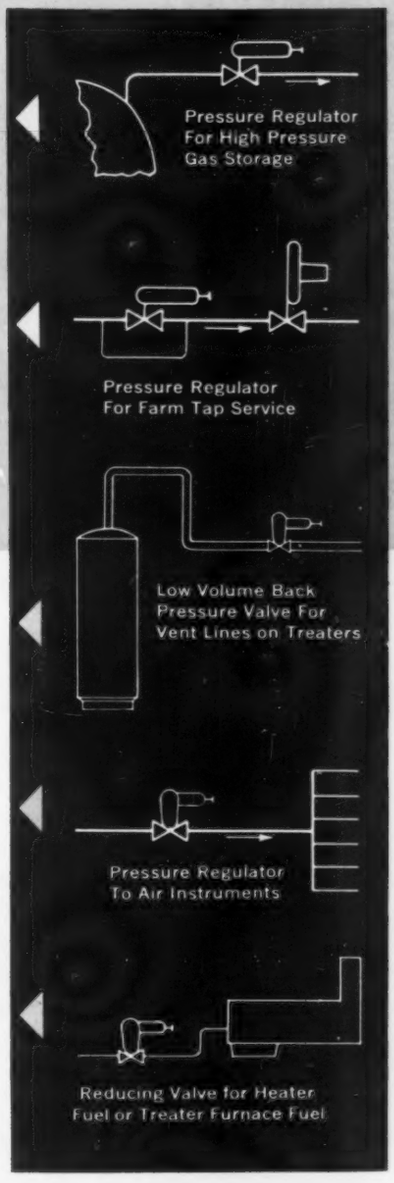
- Designed for dollar saving installations

TYPE **630** FOR INLET PRESSURES UP TO **1500** psi



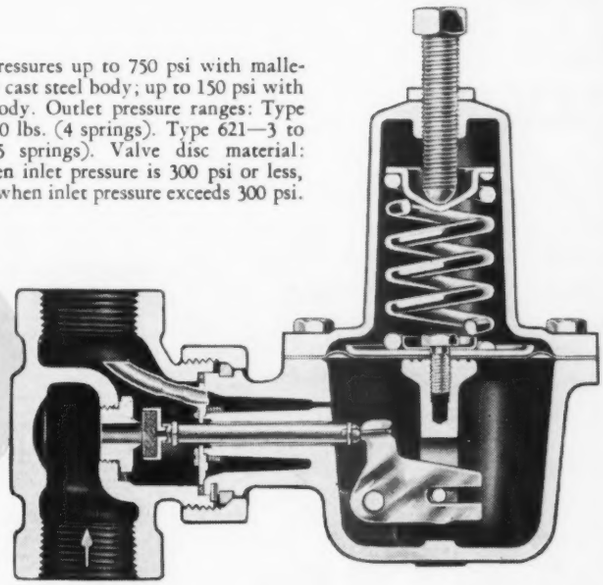
BIG JOE Type 630. Reduces high pressure gas to a constant supply pressure of 5 to 500 psi Valve disc material: Up to 200 psi inlet BunaN is furnished. 200 psi inlet and above, Nylon is furnished. (Teflon is available when specified.)

Big Joe is supplied in 1″ or 2″ screwed connections. Type 630 can also be furnished as a relief valve, Type 630R for relief pressures up to 175 psi.


Pressure Regulator For High Pressure Gas Storage
Pressure Regulator For Farm Tap Service
Low Volume Back Pressure Valve For Vent Lines on Treaters
Pressure Regulator To Air Instruments
Reducing Valve for Heater Fuel or Treater Furnace Fuel

For inlet pressures up to 750 psi with malleable iron or cast steel body; up to 150 psi with cast iron body. Outlet pressure ranges: Type 620—3 to 60 lbs. (4 springs). Type 621—3 to 100 lbs. (5 springs). Valve disc material: BunaN when inlet pressure is 300 psi or less, and Nylon when inlet pressure exceeds 300 psi.

TYPE **620** FOR INLET PRESSURES UP TO **750** psi



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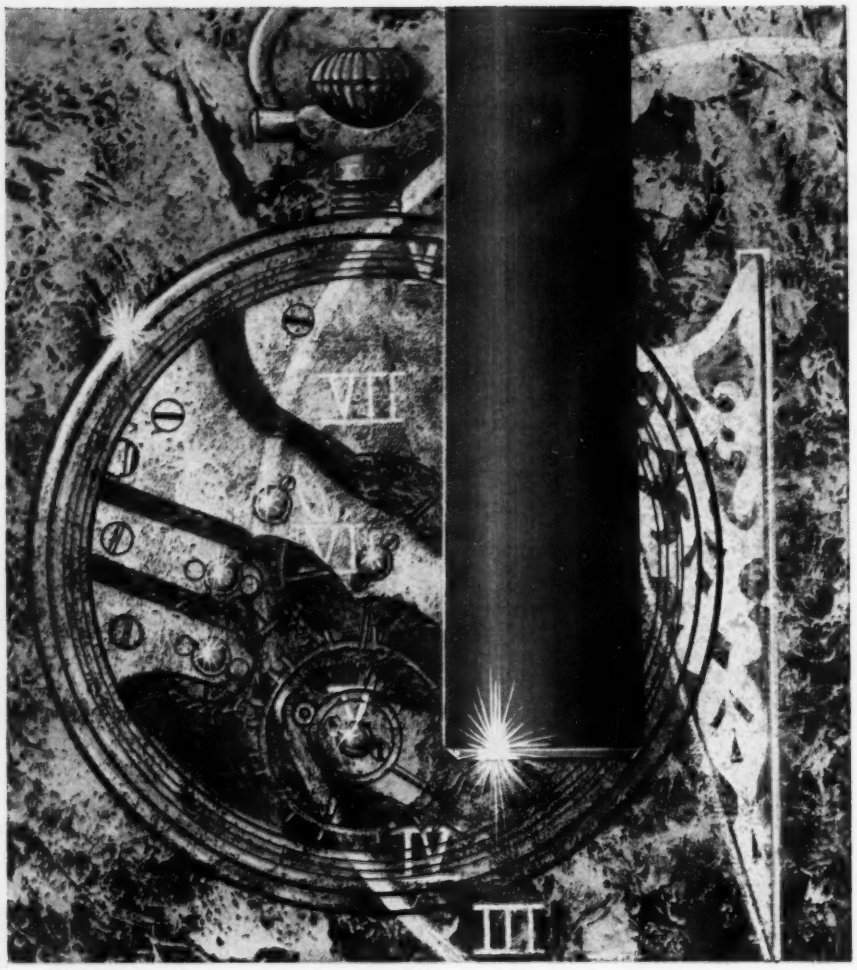

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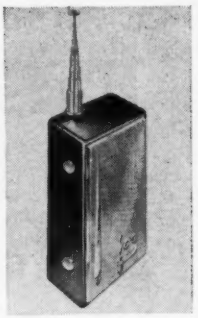
PRODUCT PARADE

Powerful new 2-way pocket radio engineered by Lawrence Hermes, inventor of the original walkie-talkie, is now available from International Communications Corp. New unit, built with 9 transistors, one diode and one thermistor, has unobstructed range of up to 10 miles. Metal case is 2⅞ by 1 by 6-in. with telescopic whip antenna extending to 52 inches. Weighs only 15 oz. less batteries. Maximum power is 100 mw for the 27 MC Citizens band. All circuitry is printed. 21



Industrial television monitors for industrial use . . . including 14, 17, and 21-in. screen sizes in both cabinet and rack-mount models . . . are described in new 4-page bulletin issued by General Electric. Fully illustrated, bulletin contains detailed information on monitors' performance, reliability, and low operating and maintenance costs. Control, accessory, size and weight information and input, electrical and environmental specifications, are also supplied. 22

Comprehensive guide to effective and economical vegetation control in industrial areas is now available from Dupont. The 16-page guide can be used in analyzing vegetation problems and selecting right chemical or combination of chemicals to keep area free of weeds. Selection of proper chemical may depend on differences in plant species, rainfall, soil types, and various economic factors. 23

Line-mounted gas meters. Roots-Connersville Blower, Div. of Dresser Industries, Inc., has released new data on its line-mounted rootsmeters. The line-mounted models are offered in 3000 cfh and 7000 cfh (dial rate) for working pressures to 125 psig. Features of the meters and detailed specifications including construction features, dimensions and capacity ratings at various operating pressures, are also included in the new literature. 24

Catalog information on gas regulators manufactured by Reynolds Gas Regulator Co., Inc. has been issued in 3 new information booklets, that are part of the main Reynolds catalog, which is currently being revised. An 8-page booklet covers Reynolds field regulators, a 4-page booklet describes the 8010 house service regulator, and a 4-page booklet covers the 8310 series house and high pressure service regulator. All booklets are illustrated and printed in color. 25

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